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YEAR BOOK
1929

PROCEEDINGS OF THE
TENTH INTERNATIONAL COST CONFERENCE

At West Baden Springs Hotel
West Baden, Indiana
June 17, 18, 19, 20, 1929

NATIONAL ASSOCIATION BUILDING
26 WEST 44TH STREET, NEW YORK CITY

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1929

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President: WM. BAUM, *Real Silk Hosiery Mills*, Indianapolis, Ind.
Vice-President: F. J. SCHLATTER, *Continental Steel Corp.*, Kokomo, Ind.
Treasurer: J. ALFRED THOMPSON, JR., *Hassler Mfg. Co.*, 1535 Naomi Street, Indianapolis, Ind.
Secretary: L. W. RASSOW, *G. & J. Tire Co.*, 549 E. Georgia Street, Indianapolis, Ind.
Directors: *Meetings*—FRED DAVIS, *Eli Lilly & Co.*, P. O. Box 618, Indianapolis, Ind.
Membership—L. A. BARON, *Stutz Motor Car Co. of America*, 1002 N. Capitol Ave., Indianapolis, Ind.
Program—ELWOOD RAMSEY, *Geo. S. Olive Co.*, 328 Chamber of Commerce, Indianapolis, Ind.
Publications—RICHARD E. BRANN, *Legion Publishing Co.*, Indianapolis, Ind.
Publicity—FRANK S. BOWLBY, *American Appraisal Co.*, Indianapolis, Ind.
Research & Standardization—ALVA L. PRICKETT, *Indiana University*, Commerce Hall, Room 33, Bloomington, Ind.
Past Presidents: C. F. EVELEIGH, *Eli Lilly & Co.*, Indianapolis, Ind.
R. E. GUILD, *Citizens Gas Co.*, Indianapolis, Ind.
Meeting Day—Third Wednesday.

KANSAS CITY CHAPTER

President: R. P. MICHAELSEN, *W. S. Dickey Clay Mfg. Co.*, New York Life Building, Kansas City, Mo.
Vice-President: BENJAMIN E. YOUNG, *The Commerce Trust Co.*, Commerce Building, Kansas City, Mo.
Vice-President: DAVID B. PETER, *Price, Waterhouse & Co.*, 1114 Federal Reserve Bank Building, Kansas City, Mo.

Treasurer: J. D. M. CROCKETT, *Crockett, Couchman & Crawford,* 1015 National Fidelity Life Building, Kansas City, Mo.

Secretary: EDWARD J. DILLON, *Edward J. Dillon & Co.,* 1100 National Fidelity Life Building, Kansas City, Mo.

Directors: *Meetings*—JOHN P. COOPER, *K. C. Structural Steel Co.,* 21st and Metropolitan Avenue, Kansas City, Kansas.

Membership—G. S. WAYMAN, *H. D. Lee Mercantile Co.,* 20th & Wyandotte Streets, Kansas City, Mo.

Program—J. B. KERRIGAN, *H. T. Poindexter Mdse. Co.,* 308 West 8th Street, Kansas City, Mo.

Publications—RALPH L. BERRY, *American Appraisal Co.,* 834 Board of Trade Building, Kansas City, Mo.

Publicity—RALPH B. INNIS, *Ralph B. Innis, Inc.,* 1014 Commerce Building, Kansas City, Mo.

Research & Standardization—GERALD A. TORRENCE, *Schulze Baking Co.,* 118 West 47th Street, Kansas City, Mo.

Past Presidents: NEIL G. LILLEY, *Kansas City Structural Steel Co.,* Kansas City, Kansas.

EARLE N. DANIELS, *Irving Pitt Manufacturing Co.,* 802 Locust Street, Kansas City, Mo.

Meeting Day—Fourth Monday.

LOS ANGELES CHAPTER

President: EARL J. ATKINS, *California Dairies, Inc.,* 237 Winston Street, Los Angeles, Cal.

Vice-President: RAY S. MARSHALL, *Metropolitan Finance Co.,* 525 N. Curson Avenue, Los Angeles, Cal.

Treasurer: GEO. F. ANDERSON, *International Business Machines Corp.,* 131 East 6th Street, Los Angeles, Cal.

Secretary: FRED W. KRAGE, *Axelson Machine Co.,* P. O. Box 337, Los Angeles, Cal.

Directors: *Meetings*—HARRY L. MILLER, *Fibreboard Products, Inc.,* 1514 S. Orange Grove Avenue, Los Angeles, Cal.

Membership—N. S. ROWLAND, *Pacific Goodrich Rubber Co.,* 5400 E. 9th Street, Los Angeles, Cal.

Program—W. INGRAM PARKE, *Southern California Gas Co.,* 950 S. Broadway, Los Angeles, Cal.

Publications—WALTER C. WRIGHT, 1750 Tamarind Street, Hollywood, Cal.

N. J. REDMOND, *Blue Diamond Co.,* P. O. Box 630, Arcade Station, Los Angeles, Cal.

Research & Standardization—HERBERT OBERSTE-LEHN, *German Tube Syndicate,* 710 Petroleum Securities Building, Los Angeles, Cal.

Past Presidents: WM. B. EDSON, 241 Winston Street, Los Angeles, Cal.

JOSEPH A. GARRETT, *Garrett, Adlequist & Associates,* 617 Chamber of Commerce Building, Los Angeles, Cal.

E. W. HEDLAND, *Los Angeles Examiner,* Los Angeles, Cal.

HENRY M. THOMSON, *Thomson, Cooper & Thomson,* 1428 Chapman Building, Los Angeles, Cal.

HARRY H. BASKERVILLE, *Baskerville Audit Co.,* 841 Petroleum Securities Building, Los Angeles, Cal.

M. LELAND STANFORD, 922 C. C. Chapman Building, Los Angeles, Cal.

Meeting Day—Third Tuesday.

LOUISVILLE CHAPTER

President: RICHARD C. F. HANSEN, *Frozpure Ice Cream Co.,* 26th & Broadway, Louisville, Ky.

Vice-President: W. T. ZURSCHMIEDE, *Banko Kentucky*, Louisville, Ky.
Vice-President: J. J. MCKENNA, *Louisville Gas & Electric Co.*, 311 West Chestnut Street, Louisville, Ky.
Treasurer: T. HAYDEN DOWELL, *New Albany Veneering Co.*, 13th and McBeth Streets, New Albany, Ind.
Secretary: R. E. JACKE, *Reynolds Metals Co.*, 30th and Grand Avenue, Louisville, Ky.
Directors: *Meetings*—FRANK J. PFEIFFER, *Louisville Gas & Electric Co.*, 311 West Chestnut Street, Louisville, Ky.
Membership—GEO. A. DENSON, *Eskimo Pie Corp.*, 30th and Grand Avenue, Louisville, Ky.
Program—E. G. PAULSON, *American Creosoting Co.*, Columbia Building, Louisville, Ky.
Publications—V. F. KIMBEL, *Ballard & Ballard Co.*, 912 East Broadway, Louisville, Ky.
Publicity—E. F. OVERSTREET, *D. H. Ewing's Sons*, 3rd Street and Kentucky, Louisville, Ky.
Research & Standardization—J. BERNARD BROWN, Spencerian Building, 813 South First Street, Louisville, Ky.
Past President: G. W. SHIELDS, *Federal Chemical Co.*, 1712 Heyburn Building, Louisville, Ky.
Meeting Day—Third Tuesday.

MILWAUKEE CHAPTER

President: JOHN G. CONLEY, 425 East Water Street, Milwaukee, Wis.
Vice-President: CLYDE HUDSPETH, *Burrows Adding Machine Co.*, 441 Broadway, Milwaukee, Wis.
Vice-President: LAWRENCE G. REGNER, *Briggs & Stratton Corp.*, 1047-13th Street, Milwaukee, Wis.
Treasurer: HAROLD TODD, *First Wisconsin National Bank*, 425 East Water Street, Milwaukee, Wis.
Secretary: E. H. MEYER, *Robert A. Johnston Co.*, 34th and National Avenue, Milwaukee, Wis.
Directors: *Meetings*—EUGENE DRAKE, *Kearney & Trecker Co.*, 5926 National Avenue, West Allis, Wis.
Membership—W. L. WEIFENBACH, *Durant Mfg. Co.*, 655 Buffum Street, Milwaukee, Wis.
Program—WILLIAM CHARLES, *Price, Waterhouse & Co.*, 425 East Water Street, Milwaukee, Wis.
Publications—L. C. HUTSON, *M. Carpenter Baking Co.*, 102-7th Street, Milwaukee, Wis.
Publicity—W. P. WESTFALL, *Tabulating Machine Co.*, 383 Milwaukee Street, Milwaukee, Wis.
Research & Standardization—C. L. PFEIFER, *Chain Belt Co.*, 736 Park Street, Milwaukee, Wis.
Past Presidents: B. H. SPRINGER, *John Schroeder Lumber Co.*, Milwaukee, Wis.
JERRY KEOGH, *Allis Chalmers Co.*, Milwaukee, Wis.
H. JACK BOCK, *Stevenson, Harrison & Jordan*, Chicago, Ill.
W. K. BOYLE, *National Brake and Electric Co.*, Milwaukee, Wis.
CARL H. LAUN, 638 Colonial Drive, High Point, N. C.
Meeting Day—Third Thursday.

NEWARK CHAPTER

President: JAMES J. HASTINGS, 24 Commerce Street, Newark, N. J.
Vice-President: C. HOWARD KNAPP, *Waitt & Bond, Inc.*, 310 Sherman Avenue, Newark, N. J.

Vice-President: HOWARD H. ECKERT, *Thos. A. Edison, Inc.*, Orange, N. J.
Treasurer: THOMAS W. OTT, *Monroe Calculating Machine Co.*, 555 Mitchell Street, Orange, N. J.
Secretary: DUKE RICHARDSON, *Monroe Calculating Machine Co.*, 555 Mitchell Street, Orange, N. J.
Directors: *Meetings*—THOMAS L. EVANS, *Weston Electrical Instrument Corp.*, 614 Frelinghuysen Avenue, Newark, N. J.
Membership—EDWARD M. DOUGLAS, *Tabulating Machine Co.*, 12 E. Park Street, Newark, N. J.
Program—EDWIN E. SALT, *Art Metal Works, Inc.*, Aronson Square, Newark, N. J.
Publications—HENRY P. SCHUIT, *Merck & Co., Inc.*, Rahway, N. J.
Publicity—EDWARD E. LEWIS, *Eclipse Aviation Co.*, 545 No. Arlington Avenue, E. Orange, N. J.
Research & Standardization—HOWARD H. ECKERT, *Thos. A. Edison, Inc.*, Orange, N. J.
Past President: J. J. HASTINGS, 24 Commerce Street, Newark, N. J.
Meeting Day—Fourth Thursday.

NEW HAVEN CHAPTER

President: E. J. MONDE, *Seward and Monde*, 205 Church Street, New Haven, Conn.
Vice-President: E. I. PETZE, *Petze & Schuyler*, 153 Court Street, New Haven, Conn.
Vice-President: W. C. ARMSTRONG, JR., Rockbestos Products Corp., P. O. Drawer 1102, New Haven, Conn.
Treasurer: R. M. BURY, *Tabulating Machine Co.*, 341 State Street, New Haven, Conn.
Secretary: F. A. SHARP, *Greist Manufacturing Co.*, New Haven, Conn.
Directors: *Meetings*—C. A. STEPHAN, *Hoggson & Pettis Mfg. Co.*, New Haven, Conn.
Membership—L. A. BUCKINGHAM, 152 Temple Street, New Haven, Conn.
Program—J. W. CLEVELAND, *Seamless Rubber Co.*, New Haven, Conn.
Publications—C. F. THOMPSON, 76 N. Whittlesey Avenue, Wallingford, Conn.
Publicity—FRANK CALLAHAN, 28 Eld Street, New Haven, Conn.
Research & Standardization—H. F. ANDREWS, *A. B. Hendryx Co.*, 78 Audubon St., New Haven, Conn.
Past President: R. D. JACK, *Winchester Repeating Arms Co.*, New Haven, Conn.
Meeting Day—Fourth Tuesday.

NEW YORK CHAPTER

President: C. H. TOWNS, *Loomis, Suffern & Fernald*, 50 Broad Street, New York, N. Y.
Vice-President: A. L. PRENTICE, *Worthington Pump & Machinery Corp.*, 2 Park Avenue, New York, N. Y.
Vice-President: W. F. PULSTER, *Remington Rand Business Service, Inc., Powers Accounting Machine Division*, 374 Broadway, New York, N. Y.
Treasurer: B. A. BRADY, *International Printing Ink Corp.*, 580 Fifth Avenue, New York, N. Y.
Secretary: J. D. GRIFFIN, *The Accountants Club*, Hotel Montclair, 49th Street and Lexington Avenue, New York, N. Y.

Directors: *Meetings*—A. L. PRENTICE, *Worthington Pump & Machinery Corp.*, 2 Park Avenue, New York, N. Y.
Membership—G. A. WARE, *News Print Service Bureau*, 342 Madison Avenue, New York, N. Y.
Program—W. F. PULSTER, *Remington Rand Business Service, Inc., Powers Accounting Machine Division*, 374 Broadway, New York, N. Y.
Publications—E. D. PAGE, *U. S. Rubber Co.*, 1790 Broadway, New York, N. Y.
Publicity—EDWARD PERKINS, *Tabulating Machine Co.*, 310 Fifth Avenue, New York, N. Y.
Research & Standardization—WM. R. DONALDSON, *P. N. Miller & Co.*, 50 Broad Street, New York, N. Y.
C. A. PACKARD, *Worthington Pump & Machinery Corp.*, 2 Park Avenue, New York, N. Y.
J. W. STOKES, *Motors Holding Corp.*, Room 1412, 1775 Broadway, New York, N. Y.
VICTOR H. STEMPF, *Touche, Niven & Co.*, 80 Maiden Lane, New York, N. Y.

Past Presidents: CHARLES VAN ZANDT, *General Office Equipment Corporation*, 1501 Broadway, New York, N. Y.
C. M. FINNEY, *Prince & Whitely*, 25 Broad Street, New York, N. Y.
H. G. CROCKETT, *Scovell, Wellington & Co.*, 270 Madison Avenue, New York, N. Y.
JOHN E. HORN, *Bakelite Corp.*, 247 Park Avenue, New York, N. Y.
GEORGE REA, *Touche, Niven & Co.*, 80 Maiden Lane, New York, N. Y.
ERIC A. CAMMAN, *Peat, Marwick, Mitchell & Co.*, 40 Exchange Place, New York, N. Y.
CHARLES A. WILLIAMS, *American Safety Razor Corp.*, Jay and Johnson Streets, Brooklyn, N. Y.

Meeting Day—2nd Tuesday, except Feb., March and April—3rd Tuesday.

PHILADELPHIA CHAPTER

President: EDWARD P. MOXEY, JR., *E. P. Moxey & Co.*, 1416 Chestnut Street, Philadelphia, Pa.

Vice-President: GEORGE P. LANDWEHR, *Philadelphia Electric Co.*, 9th and Sansom Streets, Philadelphia, Pa.

Vice-President: ROBERT BURNS, *American Insulating Machinery Co.*, Fairhill and Huntingdon Streets, Philadelphia, Pa.

Treasurer: WESTON J. HIBBS, *Philadelphia Gas Works*, Broad & Arch Streets, Philadelphia, Pa.

Secretary: CLYDE S. CRESSEY, *Peirce School of Business Administration*, 1420 Pine Street, Philadelphia, Pa.

Directors: *Meetings*—ROBERT BURNS, *American Insulating Machinery Co.*, Fairhill and Huntingdon Streets, Philadelphia, Pa.
Membership—FRANK S. GLENDENING, 811 Widener Building, Philadelphia, Pa.
Program—ARTHUR W. MARSHALL, *General Asphalt Co.*, 1600 Arch Street, Philadelphia, Pa.
Publications—JOHN BALCH, *Balch, Funk Co.*, West End Trust Building, Philadelphia, Pa.
Publicity—VERL L. ELLIOTT, *Atlantic Refining Co.*, 260 South Broad Street, Philadelphia, Pa.
Research & Standardization—JOHN HIHN, JR., *Ballinger Co.*, 12th and Chestnut Streets, Philadelphia, Pa.

HARVEY L. GAUMER, *Henry Disston & Co.*, Tacony, Philadelphia, Pa.

Past Presidents: EDMUND L. OERTER, *J. G. Brill Co.*, 62nd St. and Woodland Ave., Philadelphia, Pa.
JOHN M. SCANLON, *Hess-Bright Mfg. Co.*, Front St. and Erie Ave., Philadelphia, Pa.
WALTER CAMENISCH, 2220 Estaugh Street, Philadelphia, Pa.
EDWARD P. MOXEY, JR., *E. P. Moxey & Co.*, 1416 Chestnut Street, Philadelphia, Pa.

Meeting Day—Third Friday.

PITTSBURGH CHAPTER

President: W. F. MARSH, *Lybrand, Ross Bros. & Montgomery*, Union Bank Building, Pittsburgh, Pa.

Vice-President: W. R. FISHER, *Union Switch & Signal Co.*, Swissvale, Pa.

Vice-President: G. A. ROTHRAUFF, *Macbeth-Evans Glass Co.*, Charleroi, Pa.

Secretary-Treasurer: ANDREW H. BLASS, *Blass, Wood & Co.*, Law & Finance Building, Pittsburgh, Pa.

Directors: *Meetings*—E. B. VELLIG, *Gulf Refining Co.*, Frick Annex, Pittsburgh, Pa.
Membership—M. C. WALSH, *Pittsburgh Steel Co.*, Union Trust Building, Pittsburgh, Pa.
Program—W. H. CHEFFEY, *Union Switch & Signal Co.*, Swissvale, Pa.
Publications—C. L. VAN SICKLE, *University of Pittsburgh*, Pittsburgh, Pa.
Publicity—W. J. JACQUETTE, *Pierpoint Motor Co.*, 5001 Baum Blvd., Pittsburgh, Pa.
Research & Standardization—A. W. REMENSNYDER, *Duquesne Steel Foundaries Co.*, Coraopolis, Pa.

Past Presidents: G. D. PIPER, *Westinghouse Electric & Mfg. Co.*, E. Pittsburgh, Pa.
H. S. KEYSER, *Dept. of Welfare, Commonwealth of Pennsylvania*, Harrisburg, Pa.
C. G. JENSEN, *A. M. Byers Co.*, Pittsburgh, Pa.
C. E. RESLEY, *National Radiator Co.*, Johnstown, Pa.
C. C. SHEPPARD, *Sheppard & Co.*, 307 Oliver Building, Pittsburgh, Pa.
A. W. BASS, *Westinghouse Electric & Mfg. Co.*, East Pittsburgh, Pa.

Meeting Day—Second Wednesday—except September and March.

PROVIDENCE CHAPTER

President: HARRY E. HOWELL, *Grinnell Co., Inc.*, 260 West Exchange Street, Providence, R. I.

Vice-President: A. PRESTON ROFFEE, JR., *Providence Base Works of G. E. Co.*, 586 Atwells Avenue, Providence, R. I.

Vice-President: LESTER F. MORSE, *Gorham Mfg. Co.*, 95 Albert Avenue, Edgewood, R. I.

Treasurer: CHARLES H. LEFFINGWELL, *United States Rubber Co.*, 355 Valley Street, Providence, R. I.

Secretary: HARRY A. KEENE, *Grinnell Co., Inc.*, 260 West Exchange Street, Providence, R. I.

Directors: *Meetings*—EDWARD A. CARL, *Atlantic Mills*, Providence, R. I.
Membership—GEORGE A. FIELD, *Rhode Island Yarn Co.*, 99 Maplewood Avenue, Arlington, R. I.
Program—EDWIN J. LOUCKS, *Phillips Wire Co.*, Pawtucket, R. I.

Publications—ERNEST WHITWORTH, *Lorraine Mfg. Co.*, Pawtucket, R. I.
Publicity—HENRY J. LEE, *Bryant-Stratton College*, 57 Meadow Street, Pawtucket, R. I.
Research & Standardization—GEORGE L. DICKINSON, *J. & P. Coats R. I. Inc.*, P. O. Box 968, Pawtucket, R. I.

Past Presidents: WILLIAM SEGUR, *Ward-Fisher and Co.*, Gas Company Building, Providence, R. I.
CHARLES GRITMAN, *Providence Base Works*, 586 Atwells Avenue, Providence, R. I.
JOHN W. ROOT, *Weir Stove Co.*, Taunton, Mass.
HARRY E. HOWELL, *The Grinnell Co.*, 260 West Exchange Street, Providence, R. I.

Meeting Day—Second Monday.

ROCHESTER CHAPTER

President: EDMOND S. LA ROSE, *Bausch & Lomb Optical Co.*, 635 St. Paul Street, Rochester, N. Y.
Vice-President: IRVING W. BRIGGS, *Eastman Kodak Co.*, 333 State Street, Rochester, N. Y.
Vice-President: JAMES L. MCGEE, *Yawman & Erbe Mfg. Co.*, 1099 Jay Street, Rochester, N. Y.
Treasurer: S. G. BOWIE, *Rochester Telephone Co.*, 335 Main Street, East, Rochester, N. Y.
Secretary: W. G. LYONS, *North East Service, Inc.*, 391 Lyell Avenue, Rochester, N. Y.
Directors: *Meetings*—GILBERT W. SUTTON, *Pfaudler Co.*, Lincoln Park, Rochester, N. Y.
Membership—JOHN D. SMITH, *Felt & Tarrant Mfg. Co.*, 328 Main Street, E., Rochester, N. Y.
Program—L. M. SCHRAM, *International Business Machines Co.*, 622 Main Street, E., Rochester, N. Y.
Publications—HARRY H. LANG, *Stecher Lithograph Co.*, 274 N. Goodman Street, Rochester, N. Y.
Publicity—R. H. FARMEN, *Hawk-Eye Works, Eastman Kodak Co.*, Rochester, N. Y.
Research & Standardization—C. J. VAN NIEL, *Eastman Kodak Co.*, Rochester, N. Y.

Past Presidents: C. WALTER COAPMAN, *North East Electric Co.*, 379 Lyell Avenue, Rochester, N. Y.
MYRON J. HAYES, *Eastman Kodak Co.*, Rochester, N. Y.
ZAHRT L. AUGUSTINE, *North East Electric Co.*, 379 Lyell Avenue, Rochester, N. Y.
EDMOND S. LA ROSE, *Bausch & Lomb Optical Co.*, Rochester, N. Y.

Meeting Day—Third Wednesday, except December—Second Wednesday.

ROCKFORD CHAPTER

President: HOWARD C. GREGORY, *J. L. Clark Mfg. Co.*, Rockford, Ill.
Vice-President: NOBLE J. SCHMIDT, *Rockford Northwestern Malleable Corp.*, Rockford, Ill.
Vice-President: GEORGE A. LINDBLADE, *Sundstrand Machine Tool Co.*, Rockford, Ill.
Treasurer: J. T. ATKINSON, *Rockford National Bank*, Rockford, Ill.
Secretary: H. A. DALES, *Rockford Mitten and Hosiery Co.*, Rockford, Ill.
Directors: *Meetings*—M. L. HEMENWAY, *Rockford Electric Co.*, Rockford, Ill.

Membership—H. E. L. GREEN, *The Washburn Co.*, Rockford, Ill.
Program—E. M. ROBBINS, *Fairbanks-Morse Co.*, 953 Church Street, Beloit, Wis.
Publications—A. G. BLOCK, *Barnes Drill Co.*, Rockford, Ill.
Publicity—M. E. WAHLSTROM, *Burd High Compression Ring Co.*, Rockford, Ill.
Research & Standardization—J. G. JONES, *Barber Colman Co.*, Rockford, Ill.

Meeting Day—Third Wednesday.

ST. LOUIS CHAPTER

President: C. A. RENARD, *Ralston-Purina Co.*, 8th and Gratiot Streets, St. Louis, Mo.
Vice-President: A. HENDERSON, *Evans & Howard Fire Brick Co.*, 916 Market Street, St. Louis, Mo.
Treasurer: F. F. SIMON, *Wagner Electric Co.*, 6400 Plymouth Avenue, St. Louis, Mo.
Secretary: G. C. HETLAGE, *G. C. Hetlage & Co.*, 354 Planters Building, St. Louis, Mo.
Directors: *Meetings*—F. A. EISELE, *Laclede Steel Co.*, Arcade Building, St. Louis, Mo.
Membership—R. A. PEEBLES, *Monroe Calculating Machine Co.*, Syndicate Trust Building, St. Louis, Mo.
Program—W. A. ROBERTSON, *Fisher Body Co.*, Union Avenue at Natural Bridge, St. Louis, Mo.
Publications—A. C. SMITH, Boatmen's Bank Building, St. Louis, Mo.
Publicity—P. F. HOLTZ, *Con. P. Curran Printing Co.*, 8th and Walnut Streets, St. Louis, Mo.
Research & Standardization—A. J. SAXER, La Salle Building, St. Louis, Mo.
Past Presidents: A. F. BARNES, *Mercantile Trust Co.*, 8th and Locust Streets, St. Louis, Mo.
W. R. PHEMISTER, *Monsanto Chemical Works*, 1724 South 2nd Street, St. Louis, Mo.
J. J. LANG, La Salle Building, St. Louis, Mo.

Meeting Day—Third Tuesday.

SAN FRANCISCO CHAPTER

President: V. P. BROCKHOUSE, *National Carbon Co.*, 599 8th Street, San Francisco, Cal.
Vice-President: H. J. COOPER, 519 California Street, San Francisco, Cal.
Vice-President: C. T. TINKER, *California Corrugated Culvert Co.*, 5th and Parker Streets, Berkeley, Cal.
Treasurer: H. H. WAIT, *Fisher Body St. Louis Co.*, Hillside Avenue Nr. Foothill Blvd., Oakland, Cal.
Secretary: A. S. KAYSER, *Bass Hueter Paint Co.*, 2240-24th Street, San Francisco, Cal.
Directors: *Meetings*—F. E. MILES, *Spreckels Companies*, 2 Pine Street, San Francisco, Cal.
Membership—E. R. HAWKINSON, *Pacific Meter Works*, 11th and Bryant Streets, San Francisco, Cal.
Program—E. A. SUNSTROM, *Arthur Andersen & Co.*, 649 Russ Building, San Francisco, Cal.
Publications—R. H. BARR, *Hunt Brothers Packing Co.*, 111 Sutter Street, San Francisco, Cal.

Publicity—H. C. DOMNICK, *H. V. Carter Co.*, 52 Beale Street, San Francisco, Cal.
Research & Standardization—B. H. HICKLIN, 941 Russ Building, San Francisco, Cal.
Past Presidents: FRANK A. MACHUGH, 277 Pine Street, San Francisco, Cal.
A. G. STRONG, *Hood & Strong*, Standard Oil Building, San Francisco, Cal.
C. L. QUEEN, *Lybrand, Ross Bros. & Montgomery*, 2 Pine Street, San Francisco, Cal.
J. HUGH JACKSON, *Graduate School of Business, Stanford University*, Palo Alto, Cal.
Meeting Day—Fourth Monday.

SCRANTON CHAPTER

President: W. F. JONES, *U. S. Internal Revenue Department*, Post Office Building, Scranton, Pa.
Vice-President: S. LEROY CHAPPELL, *Scranton Electric Construction Co.*, Scranton, Pa.
Vice-President: WM. A. DAVIS, *Lathrop & Davis*, Real Estate Building, Scranton, Pa.
Treasurer: JOHN C. SCHEUER, *Penn. Baking Co.*, 341 Brook Street, Scranton, Pa.
Secretary: R. W. RADCLIFFE, *Penn. Coal Co.*, P. O. Box 553, Scranton, Pa.
Directors: *Meetings*—J. D. NOTMAN, *Grant L. Bell & Co.*, 604 Traders Bank Building, Scranton, Pa.
Membership—ROBERT B. LEWIS, *Maloney Oil & Mfg. Co.*, 140 Meridian Street, Scranton, Pa.
Program—JOHN R. HARRIS, *R. F. Post Draying Co.*, 111 No. 7th Avenue, Scranton, Pa.
Publications—W. S. NICOL, *Cross Engineering Co.*, Carbondale, Pa.
Publicity—A. E. WILLIAMS, *Scranton Republican*, Scranton, Pa.
Research & Standardization—MARK M. GLAHN, *A. J. Sordoni Co.*, 45 Owen Street, Forty Fort, Pa.
Meeting Day—Fourth Tuesday.

SPRINGFIELD CHAPTER

President: HAROLD R. PETERS, *Hillman, Peters & Leary*, 1252 Main Street, Springfield, Mass.
Vice-President: ALBERT E. NEALE, *City Auditor*, Springfield, Mass.
Vice-President: THEODORE F. WOODWARD, *Scovell, Wellington & Co.*, 293 Bridge Street, Springfield, Mass.
Secretary-Treasurer: ERNEST YATES, *Bausch Machine Tool Co.*, 156 Wason Avenue, Springfield, Mass.
Directors: *Meetings*—ROY E. BOOTH, *United Dairy System, Inc.*, 294 Plainfield Street, Springfield, Mass.
Membership—LEONARD I. HOUGHTON, 146 Chestnut Street, Springfield, Mass.
Program—CLARENCE B. COOLEY, *Gilbert & Barker Mfg. Co.*, Springfield, Mass.
Publications—CARL T. KING, *Fiberloid Corp.*, Indian Orchard, Mass.
Publicity—PAUL H. HOSMER, *Milton Bradley Co.*, 74 Park Street, Springfield, Mass.
Research & Standardization—FRED H. RICH, *Perkins Machine & Gear Co.*, Circuit Avenue, West Springfield, Mass.

Past Presidents: LEON M. LAMB, *Greenfield Tap & Die Corp.*, Greenfield, Mass.
JOHN A. SCANLON, *Springfield Provision Co.*, Chicopee, Mass.
JOSEPH CUSHING, 1559 Main Street, Springfield, Mass.
FRANK S. HATCH, *Moore Drop Forging Co.*, Springfield, Mass.
HAROLD R. PETERS, *Hillman, Peters & Leary*, 1252 Main Street, Springfield, Mass.
Meeting Day—Third Wednesday.

SYRACUSE CHAPTER

President: WM. E. WALKER, *Brown-Lipe-Chapin Div. General Motors Corp.*, Syracuse, N. Y.
Vice-President: FRANK W. STRICKLER, *Globe Forge & Foundries, Inc.*, Syracuse, N. Y.
Vice-President: F. R. GILFOIL, Hills Building, Syracuse, N. Y.
Treasurer: MERTON W. LINDSLEY, *Oneida Community, Ltd.*, Oneida, N. Y.
Secretary: CHARLES C. TALLMAN, *H. H. Franklin Mfg. Co.*, Syracuse, N. Y.
Directors: *Meetings*—WM. M. COX, *The Lamson Co.*, Syracuse, N. Y.
Membership—CHARLES H. REED, *Burroughs Adding Machine Co.*, 319 S. Salina St., Syracuse, N. Y.
Program—DELBERT K. PREST, *Pass & Seymour, Inc.*, Solvay Station, Syracuse, N. Y.
Publications—HAROLD F. ALLEN, *Onondaga Pottery Co.*, Syracuse, N. Y.
Publicity—EDWIN F. HOFSTETTER, *Scovell, Wellington & Co.*, O. C. S. B. Building, Syracuse, N. Y.
Research & Standardization—R. H. DUNN, *Peter Cailler Kohler Swiss Chocolates Co., Inc.*, Fulton, N. Y.
Past Presidents: J. E. HALLIGAN, *H. H. Franklin Mfg. Co.*, Syracuse, N. Y.
E. F. KITENDAUGH, *Oneida Community, Ltd.*, Oneida, N. Y.
H. D. ANDERSON, *Scovell, Wellington & Co.*, Syracuse, N. Y.
J. R. TUTTLE, *Brown-Lipe-Chapin Co.*, Syracuse, N. Y.
L. W. FIELD, *Lamson Company*, Syracuse, N. Y.
HAROLD H. HAIGHT, 245 Buckingham Avenue, Syracuse, N. Y.
Meeting Day—Third Tuesday.

TOLEDO CHAPTER

President: HOWARD B. SPEYER, *Champion Spark Plug Co.*, Toledo, O.
Vice-President: WALTER E. MINER, *The Willys-Overland, Inc.*, Toledo, O.
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Membership—FRED E. HEIDRICH, *The Owens-Illinois Glass Co.*, Toledo, O.
Program—FRANK K. BILLETT, *The Toledo Scale Mfg. Co.*, Toledo, O.
Publications—W. W. LINGO, *The Mountain Varnish & Color Works, Inc.*, Toledo, O.
Publicity—FRANK C. GRANDEY, *The Woolson Spice Co.*, Toledo, O.
Research & Standardization—LEWIS O. LONG, *The Willys-Overland, Inc.*, Toledo, O.
Past President: W. E. MINER, Park Lane Apts., 23rd and Jefferson Avenue, Toledo, O.
Meeting Day—Third Tuesday.

TWIN CITIES CHAPTER

President: C. M. OSBORNE, *Minneapolis Knitting Works*, 626 Bryant Avenue North, Minneapolis, Minn.

Vice-President: S. L. ANGLE, *Minneapolis Steel & Machinery Co.*, 2854 Minnehaha Avenue, Minneapolis, Minn.

Secretary-Treasurer: ALEXIS CASWELL, *Manufacturers' Association of Minneapolis*, 100 Builders Exchange, Minneapolis, Minn

Directors: *Meetings*—NEIL H. GRIEBENOW, 58 Melbourne Avenue, S. E., Minneapolis, Minn.

Membership—GUSTAVE A. MOE, *City of Minneapolis*, 105 City Hall, Minneapolis, Minn.

F. R. CHAILQUIST, *Hennepin County Auditor's Office*, 100 Court House, Minneapolis, Minn.

Program—PAUL E. CROSS, *Waterman-Waterbury Co.*, 1121 Jackson St., N. E., Minneapolis, Minn.

Publications—W. J. RIVERS, *Wyman, Partridge & Co.*, 1st Ave. North & 4th St., Minneapolis, Minn.

Publicity—F. E. SMITH, *Winget Kickernick Co.*, 2843 26th Avenue South, Minneapolis, Minn.

Research & Standardization—H. O. FROHBACH, *General Mills, Inc.*, 200 Chamber of Commerce, Minneapolis, Minn.

Past Presidents: H. A. BULLIS, *General Mills, Inc.*, 200 Chamber of Commerce, Minneapolis, Minn.

F. H. TUTTLE, *The Photoplating Co.*, 215 5th St., N. E., Minneapolis, Minn.

J. J. REIGHARD, *University of Minnesota*, Minneapolis, Minn.

H. J. OSTLUND, *National Wholesale Druggists Association*, 51 Maiden Lane, New York, N. Y.

HARRY O. FROHBACH, *General Mills Inc.*, 200 Chamber of Commerce Minneapolis, Minn.

PAUL E. CROSS, *Watermann-Waterbury Co.*, 1121 Jackson St., N. E., Minneapolis, Minn.

Meeting Day—Second Monday.

UTICA CHAPTER

President: A. G. RHODES, *International Heater Co.*, Utica, N. Y.

Vice-President: J. T. HORNUNG, *Ganey, Hornung & Co.*, Utica National Bank & Trust Co. Bldg., Utica, N. Y.

Vice-President: G. M. VAN ALLEN, *Rome Wire Co.*, Rome, N. Y.

Treasurer: A. F. ORR, *Dunlop Tire and Rubber Corp.*, 2214 Whitesboro Street, Utica, N. Y.

Secretary: PETER GUIDO, *Bossert Corp.*, 1002 Oswego Street, Utica, N. Y.

Directors: *Meetings*—J. W. EICHLER, *Oneita Knitting Mills*, 851 Broad Street, Utica, N. Y.

Membership—R. J. DETGEN, *Burroughs Adding Machine Co.*, 111 Genesee Street, Utica, N. Y.

Program—C. J. WURM, *C. C. Kellogg & Sons Co.*, 1919 Genesee Street, Utica, N. Y.

Publications—A. D. JONES, *Remington Typewriter Co.*, Ilion, N. Y.

Publicity—C. F. MAHANEY, *Augusta Knitting Co.*, 307 Niagara Street, Utica, N. Y.

Research & Standardization—R. I. ROBERTS, *Divine Bros. Co.*, 102 Whitesboro Street, Utica, N. Y.

Past Presidents: V. W. COLLINS, *Rome Wire Company*, Rome, N. Y.

C. M. GANEY, *Ganey, Hornung & Co.*, Utica, N. Y.

J. M. BROWN, *Barrow, Wade, Guthrie & Co.*, Utica, N. Y.

Meeting Day—Third Monday.

WORCESTER CHAPTER

President: FRANK TUPPER, 311 Main Street, Worcester, Mass.
Vice-President: PAUL S. SMITH, *Rockwood Sprinkler*, 38 Harlow Street, Worcester, Mass.
Vice-President: GEORGE S. SIMMONS, *Graton & Knight Mfg. Co.*, 356 Franklin Street, Worcester, Mass.
Treasurer: HARRY C. HEDENBURG, *Wyman-Gordon Co.*, 105 Madison Street, Worcester, Mass.
Secretary: ROY H. COHN, *Burroughs Adding Machine Co.*, 8 Summer Hill Avenue, Worcester, Mass.
Directors: *Meetings*—CHARLES F. MORGAN, *Morgan Construction Co.*, 15 Belmont Street, Worcester, Mass.
Membership—CARL E. SODERBERG, *Frank Tupper & Co.*, 311 Main Street, Worcester, Mass.
PORTER W. LOWE, *Falulah Paper Co.*, Fitchburg, Mass.
Program—PAUL S. SMITH, *Rockwood Sprinkler*, 38 Harlow Street, Worcester, Mass.
Publications—EDMUND J. WHITEHEAD, *Worcester County National Bank*, 446 Main Street, Worcester, Mass.
Publicity—GEORGE S. SIMMONS, *Graton & Knight Mfg. Co.*, 356 Franklin Street, Worcester, Mass.
Research & Standardization—C. W. HUNTINGTON, *Crompton & Knowles Loom Works*, 93 Grand Street, Worcester, Mass.
HARRY W. WALLIS, *Peat, Marwick Mitchell & Co.*, 507 Main Street, Worcester, Mass.
Past Presidents: A. S. MERRIFIELD, *Norton Company*, Worcester, Mass.
WALTER J. FLEMING, *Crompton & Knowles Loom Works*, Worcester, Mass.
TAYLOR P. CALHOUN, 5040 City Line, Philadelphia, Pa.
FRANK TUPPER, *Frank Tupper & Co.*, 311 Main Street, Worcester, Mass.
Meeting Day—Second Thursday.

SESSION I

SETTING UP AN ORGANIZATION

TUESDAY MORNING, JUNE 18, 1929

This Session Was Organized Under the Direction of

J. P. JORDAN

Stevenson, Harrison & Jordan, New York City

J. P. JORDAN. Following preliminary training in mechanical engineering, Mr. Jordan's early experience was in actual operative capacities particularly in reference to steel construction. In 1903, he entered professional work as a cost engineer and following three years' service in the public accounting field, he resumed active practice as an industrial engineer in 1907. With the exception of a two year break in which he was connected in an executive capacity with a large company, he has been in this sort of work practically continuously since 1907, first as the head of his own firm and since January 1, 1925 as a partner in the firm of Stevenson, Harrison & Jordan. He is a member of the American Management Association, the Institute of Management, the American Society of Mechanical Engineers, and the Society of Industrial Engineers. He was one of the first members of our Association, and was twice honored with the presidency. He has lectured on organization problems in several universities, and is the co-author of "Cost Accounting Principles and Practice".

SETTING UP AN ORGANIZATION

THE opening session of the Tenth International Conference of the National Association of Cost Accountants convened in the West Baden Springs Hotel, West Baden Springs, Indiana, at nine-forty o'clock, with Frank L. Sweetser, Treasurer and General Manager of the Dutchess Manufacturing Company, Poughkeepsie, New York, President of the Association, in the chair.

PRESIDENT SWEETSER: I declare the Tenth Conference of the National Association of Cost Accountants open this morning. In this convention we have an announced program different from any that this Association has ever attempted. We are particularly interested in having more discussion from the floor than we have ever had. We want every man and woman who is here to take a part in these meetings.

I want to make one request. Instead of bottling yourselves up with a lot of questions on things you want to talk about and getting the speakers, especially Mr. Jordan, off in the corner after the meeting is all over, we want you to summon your fortitude and ask your questions and do your discussing here on the floor of the convention. In the first place, it is unfair to the speakers to tie them up between sessions when they have a great deal of preparation to make, and in the second place, it is only fair to everybody here to know what you are thinking about. We urge you to do your questioning and discussing in this room during the sessions.

It is my great pleasure in announcing the topic of this convention, "Organizing a Business for Profit", to bring again before this Association the honored ex-President and the personal friend of all of us, Mr. J. P. Jordan of Stevenson, Harrison & Jordan, New York City.

CHAIRMAN JORDAN: Mr. President, Fellow Members, and Guests: I want to say that I hope that this convention will

be a fulfillment of something which, personally, I have wanted to see for many years. We have had many very wonderful conventions. We always have had a most wonderful response from the best within our own organization and from the outside in giving us the best kind of papers. For the most part, however, the conventions have consisted of more or less segregated and separated subjects, with the result that the working out of a whole convention right through on one subject has never been thought possible. This particular convention is a little different than any others in that it will constitute, we hope, a continuous chain throughout the entire convention, leading up to the conclusion of how to administer a business to make a profit.

Do not think for one moment that any mechanisms of any kind are sufficient to properly run a business for a profit. No one of us here will ever think for one moment that the mere fact of knowing the cost, having a properly organized business, having standards, or even of having incentives, will in themselves amount to anything. None of those mechanisms standing alone can reach any favorable result at all. Management must manage, no matter what kind of mechanisms you have in a business, no matter what kind of help; but by the same token, if none of these mechanisms will run a business, it is just as certain that management, managing blindly, with no fixed responsibilities, with no knowledge of what things are costing, with no goal to reach, with no incentive scheme, can ever reach the best results. That is an absolute impossibility.

The measure of effectiveness for any business whatever is the profit resulting from its operations. This is a rather trite statement, and surely, one with which everyone will agree. But, if you will take the pains to look over all available statistics, and if you would get data on thousands of companies whose results are never made public, you would find surprisingly few companies which consistently produce large profits. Many more than these will show profits of medium calibre, and very many more will show mediocre profits or a state of suspension at about an even-up condition of operation. There, of course, we have the usual procession of failures.

Dependable statements issued by the big credit rating concerns place the greatest single factor of responsibility for business failure squarely on the doorstep of management. This means that

no other one cause of business failures exceeds that of inadequate (to say the least) management. These management faults vary from downright ignorance to most pitiful and unfortunate examples of bad judgment on the part of men who are brilliant in ways other than along executive lines.

Management failures, irrespective of just how they occur, all seem to have one common characteristic—i. e. that of a surprisingly striking lack of respect for, or even knowledge of the enormous power of "organized management", whereby the power of the chief executive is multiplied many times by the proper organizing of mental and mechanical forces.

Duplication of effort or the error of omission are the most common results of bad organization. A hazy conception of one's duties is a sure cause of bad performance if only from the standpoint of not knowing what to do or how far to go. But far worse than just the mechanical knowledge of what to do is the absolute absence of mental incentive which comes from a well placed responsibility where there is set up a feeling of pride in being charged with a specific and clear responsibility for some definitely stated objective.

The greatest thing in industry today is the employment of psychology. Psychology is the science of the human mind or soul and its operations, progress and functions. If this be psychology, then what else can possibly describe the science which will influence each and every individual within any organization to expend the utmost effort, both mental and physical, in producing the best possible results.

In order to employ the power of psychology in business to the greatest degree, there are four quite logical steps or phases which are of extreme importance:

1. *To Know What To Do.*
   This requires a carefully planned and well defined organization procedure.
2. *To Know How Well Things Are Done.*
   This requires records of performance.
3. *To Know How Well Things Should Be Done.*
   This requires standards of performance.
4. *To Know That a Portion of the Savings Made by an Actual Performance Better Than Standard Will be*

Divided by the Company With Those Responsible for the Savings.

This requires incentive methods.

It is on these four points that our 1929 Convention is built. For altogether too long, the men and women of our membership have striven to perfect certain mechanisms of accounting which, if properly understood and backed by management, would be very effective. But I am frank to express the thought that there exists at the present time a wide variance of ideas as to the effectiveness of much that has been developed by those who are responsible for cost accounting procedures, largely from the oft repeated conditions where the methods devised mean nothing and lead nowhere.

Why have these conditions existed? They have existed as the result of a lack of broad knowledge on the part of everyone in the organization of a coordinated sequence of thought where everything of every description is tied up to a strong policy of permitting only that which contributes actual value to the conduct of the business.

This means that the general management must have a more definite knowledge of all the requirements of a business than many general managements have today. Manufacturing, Sales, Engineering, and all such departments must have a clearer conception of the problems of each other department and must be tuned up to a clearer and more effective state of cooperation.

Last, but not least, the accounting functions must be performed with a far more complete conception of the business as a whole and in all its departments than has generally been the case in the past. The program of this Convention, being primarily designed to give a living picture of the four super-important steps just mentioned to those responsible for the accounting, is equally important to all those who are more concerned in general executive, manufacturing, selling, engineering or any other activity.

The objective of the program of this Convention is to bring out as clearly as possible how to approach these four important steps. We consider that it is not sufficient just to describe how someone has accomplished these steps in his business. Illustrations, of course, serve a purpose; but it is our aim to have no one

go out of this conference saying, "That's all right for them, but it wouldn't fit in our business". Rather than this, it is hoped that this conference will succeed in sending every member and guest home saying, "I now see how to go at these things, and I am going to analyze my own problems along these lines". In other words, we sincerely hope to give to everyone a clearer knowledge of *how* an organization scheme is built and the reasoning behind it; of *how* and *why* records must be fitted to this organization; of *how* to set standards within these records, and of *how* to set up incentive plans.

Then, when we have dealt with how to go at these various features, we hope to tell how to use them in an executive and coordinating manner to produce profits. We will consider our objective far from reached if we fail to in some measure point the way to everyone as to how they may better themselves and their companies as a result of what we present.

But the greatest success in bringing these ideas to you will in no measure be reached without your help. We will need the same intelligent and spontaneous discussion which has been an ever-growing feature of N. A. C. A. conventions. We shall endeavor to confine all discussion to the point in hand at the time, and we will greatly appreciate the utmost cooperation on that particular point, as it is often most disconcerting to have a discussion shoot far from the mark.

Please then, every one of you, consider yourself just as much a part of this program as those are who are on the platform. Make notes of doubtful points and demand a clarification. Contribute promptly and concisely your bit. If you will do this, we can make the 1929 Convention go down in history as the one never equalled and the one hardest to beat.

SETTING UP AN ORGANIZATION

J. P. JORDAN

Stevenson, Harrison & Jordan, New York City

IT is said that a cast iron contract makes good friends, and I guess experience has proven that this is just about a fact. But why is it a fact? As near as I can figure it out, it is a fact purely and simply because both or all parties to the contract

know exactly where they stand, how far they can go, and precisely the standing of everyone concerned. In approaching the subject of setting up an organization, we find almost the same problems and are concerned with the same results as is the case in setting up a contract. No matter whether an organization is large or small, there exists to a greater or less degree a human problem which is but perfectly natural, that is, anybody at all wants to know what is expected of him. He wants to know how far his authority extends and for what he is responsible. Failing in such knowledge, there is bound to be confusion, errors of omission, and overlapping of work. Naturally, this is more accentuated in a large organization than in a smaller one, but even in small organizations the results sometimes prove very disastrous if there is not in existence a well-defined scope of responsibilities clearly set forth for each responsible individual.

Not many years ago, a small company was formed and there were four men concerned who were very active in the business. For two or three years when the sledding was hard, when there were no particular results along the line of making money, these men pulled together in good shape. Almost everyone will pull together when the waves are rolling high and the wind is blowing hard. They all sat in one large room, and if one could not see to something at some particular time someone else did it for him and everything went finely. Then the business began to prosper. With foundations well laid, the results began to show. Even then everything went well for a year or two until, with profits rolling along in good shape, there began to be heard the rumblings of the human side of the problem where, with the business now grown to a larger volume, there began to be evidences of the many personal feelings which expressed themselves in many disagreeable ways.

One of these particular channels of trouble was that of differences of opinion as to who had done the most to bring about the success which the company was then enjoying. This was brought about very largely on account of their attempting to agree on what particular duties they would carry out, and amongst themselves it became practically an impossibility to arrive at any agreement. It was at this stage that the writer was privileged to enter the scene and to observe the troubles under which everyone was laboring.

A study was made of all the functions of the business, many meetings were held, and eventually an understanding was reached whereby there was set up a division of duties which seemed logical and to which each one of the men outwardly subscribed.

But inwardly there never was a real agreement on the part of two of the men as to the division of duties which had been agreed upon. The old situation of competition could not be effaced. Deep in their hearts these men could not agree, and this whole condition was entirely on account of the fact that they had gone so long without any definite agreement as to the division of duties.

In another two or three years the internal conditions of this company became such that almost a complete change of management was necessary, and today the company is one of the failures in the industrial world.

In contrast to this, another company started business with a balance sheet which showed about $50,000 assets. This company was headed by a man who had within him a spirit of organization which at the start was outstanding, and through all these years, up to the present time, this spirit has pervaded the organization of this company to such an extent that there has been built up one of the most perfectly operating industrial organizations this country has ever known. The balance sheet of this company today totals around $125,000,000 assets, and not only do the products of the company and its processes of manufacture occupy the premier position in their industry, but much more so does the organization which has brought it all about. Throughout this organization, from top to bottom, there exists at present and always has existed a definite knowledge on the part of every responsible head as to just exactly what his duties consist of, the scope of his authority, and the objective which he is supposed to reach. With such an organization as this has been and is at present, it is not to be wondered that the success has been so great. There are many reasons for having organization procedures which are clean-cut, well defined, and entirely complete. Even in smaller companies there often arises discord through lack of clean-cut divisions of authority, as was mentioned in the first case.

Every red blooded man or woman is willing to take responsibility provided this responsibility is made clear. Conversely, the very same red blooded individuals resent conflict of authority and

either an overlapping of duties of such lax conditions which will promote omission of important duties which should be carried out. To everyone with a deep feeling of responsibility there is a pride of accomplishment which demands a clear vision of the scope to be covered, and lack of a clearly defined scope is a serious depressant on everyone who wishes and tries hard to perform a real service. Without a clearly defined definition of duties, there are always many irritating factors which creep in. The chief is so often liable to allow sentiment to enter into his dealings with his people, and this sentiment may be through family connections or it may be the result of old friendships. But, when sentiment is allowed to creep in to the extent that it influences the judgment of the chief executive, there is no limit to the damage which may be done.

To preserve and to accentuate the loyalty and interest of the personnel of any organization, it seems as if the law of the contract is quite the obvious law to observe as a basis for fixing and defining responsibilities. In setting up an organization, the actual procedure must be that of analyzing the various functions of the business, their relationships one to another, and, as the result of such an analysis, to carefully decide the scope of each function and how it should hook up with each other function of the business.

Most businesses have grown up from small beginnings. The first case mentioned in this paper is about the way many businesses start. To illustrate this type of business, we may refer to Figure 1. This illustrates an "organization" which, like Topsy, just "growed" that way. The Boss, with his men, Bill, Jim and Sam, either own or control the business, or are men who have come along together in a corporation which may have grown to a large size. When the business was small they worked together faithfully, each cheerfully taking all the work he could handle irrespective of its nature. Everything went along finely and the business grew.

As a result of hard endeavor, the business prospered and the volume of business required large increases in detail work. Therefore, a controller, a purchasing agent, a superintendent and a sales manager were appointed, supposedly to take charge of the work these titles usually imply. As far as titles are concerned, the business seemed up to date. But as far as actual practice was

concerned, the situation was deplorable. Careful reference to Figure 1 will show very conclusively that the titles just mentioned are worse than empty. They became a snare and a delusion. The old war horses of the business, accustomed to old ways, each assume more or less direction of each so-called department. As a result, nothing but confusion prevails, no one knows his responsibility, who his superior is, and cares less. It is apparent that no one of any calibre could or would stand such a condition; therefore the occupants of the jobs with titles naturally become of low grade and very far from the standard which should be coming along to eventually run the business.

Ridiculous? Yes; and perhaps few cases exist to the fullest extreme as described. But I have seen more than one case as bad as this, a number that came dangerously near it, and many cases that involved to a greater or less degree the principle illustrated, i.e. that of an organization defectively constructed around *individuals* rather than *functions,* and where such individuals had no specific duties, interfering to a marked degree in the various departments of the business to a point of positive detriment, both to current operations and to the future prospects of the company. That is, no full measure of current results or no guarantee of permanency can exist in a business built only around individuals.

It is a positive fact that probably the majority of business concerns lack an underlying spirit of enthusiasm and keen interest on the part of their personnel which can come only through a high realization on the part of the executive of the absolute necessity for observing certain laws of psychology with respect to organization procedures. To give any title whatever to anyone without a clear definition of the responsibilities of the job and without guarantee of non-interference in the carrying out of the job is bad enough. When more than one interferes with or bosses any one or more departments the situation is worse. This condition is far more prevalent than one would think, particularly in family owned and operated companies or where men have grown up together in a business and become so used to the habit that it is taken as a matter of course.

In contrast to the scheme of operation shown in Figure 1 is that of the same concern when effectively organized as shown in Figure 2. This chart shows the same business organized accord-

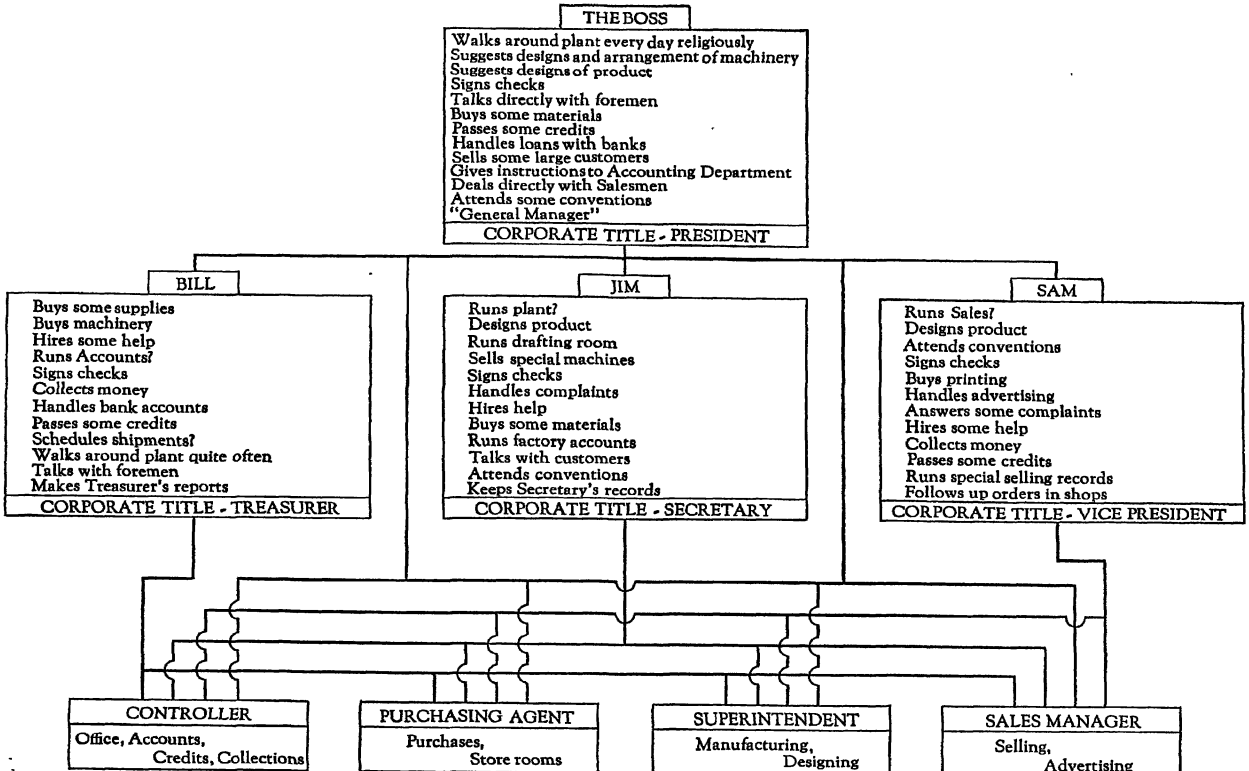
THE BOSS
Walks around plant every day religiously
Suggests designs and arrangement of machinery
Suggests designs of product
Signs checks
Talks directly with foremen
Buys some materials
Passes some credits
Handles loans with banks
Sells some large customers
Gives instructions to Accounting Department
Deals directly with Salesmen
Attends some conventions
"General Manager"
CORPORATE TITLE - PRESIDENT
BILL
Buys some supplies
Buys machinery
Hires some help
Runs Accounts?
Signs checks
Collects money
Handles bank accounts
Passes some credits
Schedules shipments?
Walks around plant quite often
Talks with foremen
Makes Treasurer's reports
CORPORATE TITLE - TREASURER
JIM
Runs plant?
Designs product
Runs drafting room
Sells special machines
Signs checks
Handles complaints
Hires help
Buys some materials
Runs factory accounts
Talks with customers
Attends conventions
Keeps Secretary's records
CORPORATE TITLE - SECRETARY
SAM
Runs Sales?
Designs product
Attends conventions
Signs checks
Buys printing
Handles advertising
Answers some complaints
Hires some help
Collects money
Passes some credits
Runs special selling records
Follows up orders in shops
CORPORATE TITLE - VICE PRESIDENT
CONTROLLER
Office, Accounts, Credits, Collections
PURCHASING AGENT
Purchases, Store rooms
SUPERINTENDENT
Manufacturing, Designing
SALES MANAGER
Selling, Advertising

FIGURE 1

ing to functions, with logical grouping of like functions under one head. This is always the first step, all considerations of personnel being of secondary importance. It is beyond all argument that for permanency of operation, the proper disposition of trained working forces and for the efficient coordination of all the functions of a business this method of arranging the organization is absolutely necessary.

After the grouping of functions has been decided on, the next step is the selection of the personnel. At this stage in revamping an existing organization an executive often bumps into difficulty. It is often found that men who have been regarded as considerable factors in the business are in reality more to be classed as "jacks of all trades and masters of none". In other words, when it comes to picking the men to head definite, fixed and specified departments, the executive often finds a real problem, a problem that forcibly brings home the real conditions of the business.

In our example in Figure 2, we have assumed that the "Boss" functions as chief executive and that Bill, Jim and Sam head the divisions of the business they are best suited for. When these assignments are completed, a new order of things will prevail. The Boss can walk through the shop if he pleases, but if he has any ideas about shop matters he takes it up with the head of the manufacturing department—not with men, foremen or even the superintendent. This stops confusion and cross purposes. Each department head is absolutely responsible for his department, with no interference. This permits instilling the same sense of responsibility into the subdivisions of each department; and when this feeling of real responsibility is once instilled throughout the whole organization from top to bottom the betterment in results is invariably most marked.

Coincidentally with planning and charting the organization a manual is prepared specifying the scope and duties of each department and division thereof, together with the duties of each individual department or division head. This manual covers *what* they do, but not *how* they do it. It is obvious that such a manual of organization, backed up with charts showing the relationship of the various departments and divisions of the same, supplies a clear and distinct guide for the entire organization. It eliminates confusion, prevents duplications and omissions, and best of all, furnishes a specification for each job which creates a powerful

incentive for accomplishment. In other words, "There's my job —I'll do it and make a record at it".

The effect on the personnel of an organization created by an organization chart alone is remarkable. A growing company, for instance, may have a chart showing the organization structure as it would be when the company grows larger. Some jobs not necessary now would show as vacant. It is an incentive for growth to see these vacant blocks on the chart, as everyone works harder for growth with eyes on the vacant jobs which will be filled when the time comes.

In analyzing the various functions of a business there are many problems to be solved. No two businesses are alike, even though they may be engaged in producing the same products. The prevailing policies of the executive management must find their reflections in the manner in which an organization structure is set up.

In the first place, there is no business, large or small, which does not have an irreducible minimum of organization functions which must be taken into account. These may be listed as follows:

1. Executive Management.
2. Financial.
3. Accounting and Office Procedure.
4. Engineering.
5. Purchasing.
6. Manufacturing.
7. Selling.

The mere fact that this irreducible minimum of functions exists does not preclude, by any means, the grouping of more than one function under one individual. But in the case of Figure 2, it is perfectly possible to definitely group more than one function under one main heading. Or, it is perfectly possible to show the functions entirely separate, and have more than one of the functions headed by the same man. But in any case, each function should show clearly in order that it may be definitely placed.

There is hardly any one function of a business other than the top executive which cannot be subjected to argument as to how it should be placed in the organization structure. While it

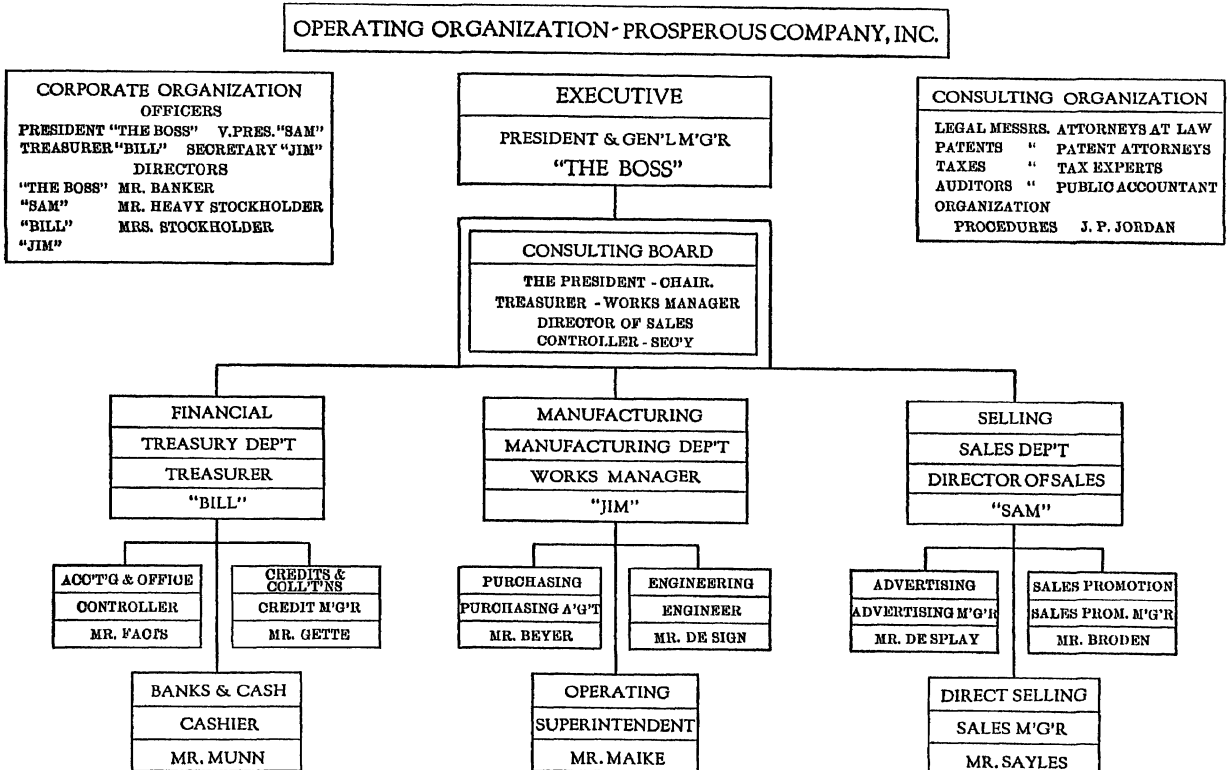
OPERATING ORGANIZATION - PROSPEROUS COMPANY, INC.
CORPORATE ORGANIZATION
OFFICERS
PRESIDENT "THE BOSS" V.PRES. "SAM"
TREASURER "BILL" SECRETARY "JIM"
DIRECTORS
"THE BOSS" MR. BANKER
"SAM" MR. HEAVY STOCKHOLDER
"BILL" MRS. STOCKHOLDER
"JIM"
EXECUTIVE
PRESIDENT & GEN'L M'G'R
"THE BOSS"
CONSULTING ORGANIZATION
LEGAL MESSRS. ATTORNEYS AT LAW
PATENTS " PATENT ATTORNEYS
TAXES " TAX EXPERTS
AUDITORS " PUBLIC ACCOUNTANT
ORGANIZATION
PROCEDURES J. P. JORDAN
CONSULTING BOARD
THE PRESIDENT - CHAIR.
TREASURER - WORKS MANAGER
DIRECTOR OF SALES
CONTROLLER - SEC'Y
FINANCIAL
TREASURY DEP'T
TREASURER
"BILL"
MANUFACTURING
MANUFACTURING DEP'T
WORKS MANAGER
"JIM"
SELLING
SALES DEP'T
DIRECTOR OF SALES
"SAM"
ACC'T'G & OFFICE
CONTROLLER
MR. FACTS
CREDITS & COLL'TNS
CREDIT M'G'R
MR. GETTE
PURCHASING
PURCHASING A'G'T
MR. BEYER
ENGINEERING
ENGINEER
MR. DE SIGN
ADVERTISING
ADVERTISING M'G'R
MR. DE SPLAY
SALES PROMOTION
SALES PROM. M'G'R
MR. BRODEN
BANKS & CASH
CASHIER
MR. MUNN
OPERATING
SUPERINTENDENT
MR. MAIKE
DIRECT SELLING
SALES M'G'R
MR. SAYLES

FIGURE 2

is a fact that, as a general rule, little attention should be paid to the effect of any one or more individuals on the organization structure of a company, it is still further a fact that the past effect of many individuals is usually detected in analyzing the various functions of a business and their relationship to other functions. For instance, many machinery manufacturing concerns have grown up around the patents of some one individual. As the business grew, this individual, on account of controlling the ownership of the company, became the chief executive, at the same time holding a very particular control of the engineering and manufacturing functions. The whole history of the company has woven together the manufacturing and engineering, with the result that they appear to be almost inseparable, and yet, upon careful analysis of any such cases, it will immediately occur to one who has not been intimately connected with the business that a much further growth of the company would make it absolutely imperative to separate these two functions, particularly in those businesses where the engineering function will be more and more required to work with the sales department almost as much as with the manufacturing department.

In order to make clear some of the problems in respect to each one of these functions, and to attempt to help anyone interested in this subject in analyzing his own or any other organization, it may be well at this time to go through each department and briefly discuss its normal scope and bring out how, under varying circumstances, each one of these functions may be placed in very different relationships to the other departments.

As to the executive department, we will pass that by with simply a blanket thought that it is always and forever the coordinating point, as every business must have its central point for the exercise of guidance and coordination.

Financial Department

The function of financing and caring for the funds of a business varies very greatly in different kinds of businesses. Furthermore, the responsibility of the Treasurer, as is the usual title of the head of the Financial Department, varies very greatly, not only in different industries but in different sections of the country. For instance, in New England, the Treasurer is an ex-

ceedingly high office, often being quite synonymous with the title "General Manager". This, however, is somewhat a relic of older days, and in practically all of this country, the Treasury Department is not accorded anywhere near the scope which it may have had in the past and in our early business life.

Today, with the development of the function commonly called that of the Controller's Department, the Treasurer is largely confined to the duty of caring for the funds of the company, arranging for loans, and the responsibility of the granting of credits and collecting of the funds from the customers, as well as paying the bills of the concern upon the approval of the Controller's Department.

In the majority of cases, the Treasurer is an elected office, and in the discharge of his duties he is subject only to the Board of Directors. Actually, however, even though the Treasurer is elected by the Board of Directors and is responsible to them, this responsibility is largely construed in the light simply of financial responsibility and does not extend to the details of the conduct of his office, particularly in those features of contact with the Sales Department and the field in the matter of credits and collections.

In many companies the Treasurer is responsible for all the financial accounting, particularly in those companies which have not developed the Controller's Department function. As a matter of fact, however, this is bad business, as one of the great features of the Controller's Department is that of providing a check and verification of all items before they are handed over to the Treasurer's office for payment. In other words, the new type of procedure as a result of the Controller's Department, separates the verification of all items, for which money must be paid out from the Treasurer's Department, thereby providing a very rigid safeguard on the paying out of the funds of the company.

We might conclude then, that the prevailing practice today would indicate that the Treasurer is responsible for the funds of the company, the granting of credits, and the making of collections, the custody of all funds in banks and cash accounts, the issuing of all instructions in connection with all these matters, the custody of all securities, and all such kindred financial responsibilities.

There is very little difference of either opinion or practice

as to the question of who the Treasurer should report to, this being in practically all cases to the chief executive of the company in all routine matters, with a direct responsibility to the Board of Directors in the matter of banking and responsibility for funds.

Accounting and Office Procedure

One of the new developments in business is the building up of the Controller's Department, the Controller being responsible in most cases for all accounting and office procedure.

There is little or no difference of opinion as to the fact that the Controller should report to the chief executive. In some companies, however, more from the standpoint of carrying out old practices, and perhaps also where the title "Controller" is not being used in its proper sense, the Controller is shown as reporting to the Treasurer. Probably, however, most of these will be found in the East, where the Treasurer holds more of an executive office than is usually the case.

Within the Controller's Department itself, however, will be found many functions of debatable nature. For instance, shall the Controller have jurisdiction over cost accounting, or shall this function be carried out in the Manufacturing Department? Shall the Controller be responsible for inventories and the taking thereof, or shall this be a function of the Manufacturing Department, particularly in those companies where the Manufacturing Department is controlling the cost accounting? Shall the Controller have charge of the function of the making out of invoices, or shall this be a function of the Sales Department? Shall the Controller have charge of the Accounts Receivable ledgers, or shall these ledgers be under the jurisdiction of the Credit and Collection Department of the Treasury?

Even other points of debatable nature may be thought of in respect to completing the scope of the Controller's function, and in all cases, each and every one of these points must be carefully worked out in order to clarify and definitely fix exactly what the Controller's Department is to be responsible for.

As a blanket argument, however, the guiding thought in respect to the Controller's Department is that of its being a check on all operations of the business in order that such check will

be entirely separated from either the line or other staff departments which may be too vitally concerned in either covering up or overlooking laxity in some form or other.

Furthermore, the Controller's Department being of a clerical nature, may well be charged with the responsibility for all records of every description as well as for office procedure, on account of the fact that the very nature of the department makes it of benefit to concentrate all such responsibilities in order that there may be a continual study leading to the reduction of clerical and office procedure costs.

If cost accounting is under the control of the Manufacturing Department, with no reference to the Controller's Department, it is obvious that there will be great difficulty in receiving final figures from which adequate final reports may be compiled. If the taking of inventories and their control from a financial standpoint is not under the jurisdiction of the Controller's Department, how can there ever be assurance that a resulting profit or loss is based on a correct inventory? In like manner, all such points must be analyzed fully, resulting from which the scope of the Controller's Department must be determined.

It may be well also to state that the jurisdiction of the Controller's Department is nowadays usually expressed in two ways —first, through direct physical jurisdiction, and second, through functional jurisdiction. That is, cost accounting itself may be physically performed in the Manufacturing Department, and under the physical control of the Manufacturing Department, but at the same time it may be under the functional jurisdiction of the Controller's Department whereby the methods used will be entirely under the control of the Controller's Department.

Engineering

In considering the Engineering function, we must keep in mind that we are now talking of creative engineering. That is, the engineering which is responsible for the product being manufactured as contrasted with any other type of engineering such as plant engineering which would obviously come under the control of the Manufacturing Department.

The engineering which we are now discussing may report to three separate and distinct heads, namely, to the chief executive,

to the Manufacturing Department, or to the Sales Department. If the engineering is in the line of designing, such as in textiles, women's garments, or anything of that sort, we may find many arguments for having such designing or engineering reporting directly to the Sales Department. Particularly in those businesses where the designing is hooked up very closely with style requirements in the field, and where the designs produced have very little bearing on the Manufacturing Department from the standpoint of cost of production, we may logically place the engineering or designing as a function to be included with the function of selling.

As quite a different proposition, we may take the engineering as we find it in an automobile plant, where the design of the automobile is the result of long and arduous research, and where the strength, beauty, and efficiency of the machine are the controlling factors. Here it would be most logical to place the engineering in the position of reporting directly to the executive management. This is particularly true on account of the fact that there not only must be consideration paid to the design and efficiency of the machine, but it also must be designed with due regard to the cost of manufacturing and as to the profit margin involved. It has been the custom in a great many businesses in the past to have the Engineering Department a companion department to the Manufacturing—that is, under one head. This was and is at present, where existing, largely the result of the conception that the product manufactured by its very nature must be designed with major consideration for Manufacturing convenience. This is somewhat a relic of older days, however, where cooperation and consideration by one department for another was not so highly developed as it is at present.

While there are many instances in existence today in machine manufacturing and other companies of like nature where the Engineering and Manufacturing are hooked up under one head, the prevailing tendency, well backed up by good arguments, is to separate these functions, whereby the Engineering will report to the executive management.

Perhaps a good example of where the Engineering or creating function of the business is hooked up very closely with the Manufacturing is in the chemical business. In this kind of business there still remain many arguments as to why the Manufacturing

is still regarded as inseparable from the Chemical Engineering. But here again it depends largely on the nature of the products being manufactured, and in many companies it has been found of advantage to require definite specifications of processes from the Chemical Engineering Department, whereby straight manufacturing methods may be employed in the production of the goods. Here we find more or less of a clash between the liability of highly temperamental chemical engineers and the more stoical and plodding type of manufacturing minds. On the other hand, however, if the nature of the chemicals being manufactured are such that there must be a constant supervision of men who know how to act quickly in an emergency, it would be found very difficult to separate the Engineering from the Manufacturing.

This function could be discussed without limit, and it is hoped that enough has been brought out in respect to it to indicate the great necessity for careful analysis before attempting to locate the Engineering function on the organization chart.

Purchasing

The Purchasing function also lends itself to many differences of opinion as to its location in the organization structure, although in most companies it is now a function reporting directly to the executive management. There are, however, many cases in different kinds of businesses where there may be an argument concerning the location of the Purchasing function. For instance, let us conceive of a business where the raw materials may consist of about three or four items which are used in very large quantities, subject to great fluctuations in price, and where very grave responsibility rests upon those who make the decisions as to contracting for the material. These contracts may be for long terms, for short terms, or the material may not be contracted for at all, but secured currently in the open market.

In the writer's experience, in almost all companies where the raw materials are largely concentrated in a few items as described above, the chief responsibility for the purchasing of these materials is assumed by the executive management, and in all such cases this reduces the purchasing function to a very considerable extent to the purchasing of materials which are more along the line of current supplies for everyday wants.

Where the purchasing consists mostly of the purchasing of current requirements largely of a supply nature, there are many arguments for placing such a Purchasing Department under the jurisdiction of the head of the Manufacturing Department. As we conduct our cost statistics today, the Manufacturing Department must answer for the cost of production, and in many cases the demand is made that as the cost of supplies is something for which they must answer, they should have control of the purchase of these supplies.

Another very moot question in respect to purchasing is in connection with the purchasing of machine tools and all pieces of equipment, large or small. In many companies the form, at least, of having all equipment purchased by the Purchasing Department is carried out. Actually, however, it is more often true that a long time before the request for purchase has ever reached the Purchasing Department, the Engineering or the Manufacturing Department has already decided exactly what is to be purchased. Admittedly, from a price standpoint, this has many disadvantages. It is unfortunately a fact that few engineers and few men in manufacturing departments have the ability to keep prospective sellers of equipment in the dark as to what is going to be done, thereby permitting any trading at all whereby prices may be reduced. It is unfortunately more often a fact that it leaks out whose equipment is preferred, and the salesman offering this equipment usually is quick enough to be sure that his prices are pretty closely in line with the advantage which he holds in whatever he is offering.

Therefore, the Purchasing function is one which requires a tremendous amount of analysis as, while it may be conceded that the Purchasing Department is perfectly capable of trading to advantage whenever they get the opportunity, it is also to be conceded that in the realm of equipment purchases they are often precluded from using their trading abilities. Therefore, shall the purchasing of equipment be carried out by the Purchasing Department, or shall it be carried out by the Engineering or Manufacturing Department, as the case may be? Furthermore, in businesses where the main raw materials are largely subject to the jurisdiction of the Executive Department, shall the Purchasing as such still report to the Executive Department, or shall it report to the Manufacturing Department?

Of course, in many other businesses the Purchasing Department is more of a real factor in the buying of raw materials, and in such cases should report unquestionably to the Executive Department. I have seen one case where the Purchasing Department reported to what was known as the Merchandising Department. In this particular instance, the manufacturing facilities of the company provided only about ten per cent of the amount of goods sold, the other ninety per cent being purchased from the outside. This organization was set up with a Merchandising Department which had jurisdiction over the Purchasing, the Traffic, and the Selling. This case, however, is quite exceptional and probably would be found rarely in any other companies.

Another very moot subject in connection with the Purchasing Department is whether or not it should have jurisdiction of storerooms and warehouse stocks. The argument is often advanced that the Purchasing Department should be responsible for all supplies of goods up to the time they are drawn out for actual processing by the Manufacturing Department. Perhaps this argument may hold in some companies, particularly in respect to the supplies of heavy bulky materials. But in my experience, with the exception of the Purchasing Department being responsible for materials up to the point of receipt in the plant, the jurisdiction of storerooms, supply rooms, and everything of that sort has no place in the Purchasing Department. All such storerooms and warehouses within a plant are too intimately associated with the conduct of the plant to permit of dual responsibility. Furthermore, the many intricate details connected with the conduct of storerooms is something which simply diverts the minds in the Purchasing Department from the problem of buying the best materials at the lowest possible prices and directs these thoughts to a lot of picayune and peanut-stand problems as to how they will store and issue material—a purely plant function.

The point which I wish to make clear is that a Purchasing Department is not always a Purchasing Department as such. It may be a full fledged Purchasing Department or it may be simply a supplies Purchasing Department, and in every business the real truth as to the standing of the department must be established, as a result of which it should be perfectly clear as to where to place the department on the organization chart.

Traffic Department

Another department which is of the Dr. Jekyl and Mr. Hyde type is the Traffic Department. This department may report to the executive management, to the Manufacturing Department, to the Sales Department, or to the Purchasing Department, all dependent on the nature of the business and the circumstances existing in each particular case.

In a chemical business with which I was at one time involved, they used to say that the raw material was brought in in carloads and the finished products shipped out in buckets, and this was just about what happened. Translating this into organization reasoning, it is quite obvious that the connection of the Traffic Department with the Sales Department was very limited, and that it became a question as to whether or not it should be part of the Purchasing function or of the Manufacturing function. The argument for its being part of the Purchasing function was that of fixing the responsibility of bringing the carloads of material into the plant at the time they were needed, the responsibility of the Purchasing Department reaching to the gate of the plant.

On the other hand, many manufacturing departments prefer to hold the scheduling of their shipments in their own hands, wishing the responsibility of telegraphing their own dates of shipment and accepting the responsibility of the flow of raw material into the plant. Here again it is a matter of analysis to see which is the best method, but probably in any plant of this sort the choice of placing the Traffic Department on the organization chart would lie between the Purchasing Department and the Manufacturing Department.

The opposite extreme may be found in another company with which I have been intimately connected, where the Traffic Department works very closely with the Sales Department, not only in the deliveries of materials, but also in the relationships with their customers. This particular company manufactures a great deal of material for railroads, and the tonnage of freights hauled over these railroads, both on raw materials incoming and finished materials outgoing, is very heavy. The allocation of these tonnages to the various railroads is a very large factor to be considered in the securing of business from the railroads. Therefore, in this particular case the Traffic Department may almost be

regarded as an adjunct of the Sales Department. Actually, however, it probably is best in such an instance to have the Traffic Department report directly to the executive management, as there is the liability, should the Traffic Department be hooked up with the Sales Department, that not sufficient attention would be paid to the requirements of the Manufacturing Department routing in its raw material supplies.

Here again, however, an exact picture of the services performed by the Traffic Department must be secured before the Department is finally placed on the organization chart.

Manufacturing Department

There is rarely ever any doubt as to the fact that the Manufacturing Department should report directly to the chief executive.

There are commonly found within the Manufacturing Department itself, however, many functions which present problems in respect to their placement on the organization chart, both as to whether or not they belong in the Manufacturing Department itself, and as to whether or not they should be included with the Manufacturing Department at all.

One of the principal functions of staff nature which is often found in the Manufacturing Department is that of the personnel work. As the real value of the Personnel function has developed from its original beginning usually connected with the supply and care for the working forces of the Manufacturing Department, the scope of the personnel work has been broadened to include in many cases not only a responsibility for all the working forces of the company, but also in connection with all problems of education, insurance, sensible welfare, and all other such human activities.

Wherever personnel work in any company covers all departments, it obviously belongs directly under the executive management. Naturally, such a placement would involve service to the Manufacturing Department as well as all other departments in respect to the provision of labor and all other kinds of help, but the primary responsibility for all employment would center within the Personnel Department.

Wherever it seems best to have the Personnel or Employment

Department, or whatever it may be called, centered in the Manufacturing Department, it should, in all cases, report to the highest official of this department, as in no cases has it been found beneficial to have it report to operating foremen.

This particular function of personnel could, if this paper dealt only with organization problems, admit of a great deal of discussion and explanation. Personnel work, in the best meaning of the word, is an exceedingly valuable function in every business, large or small, today. Great and careful attention must be given to the human side of business, and it is but natural to centralize all such work in either an individual or a department capable of carrying it out with credit.

The placement of the Personnel Department on the organization chart, therefore, while often found within the Manufacturing Department, should be considered very carefully, and if it should serve departments other than the Manufacturing, it most assuredly should report directly to the chief executive rather than to the executive in charge of Manufacturing.

There are many details within the Manufacturing Department which, in a complete discussion of organization, would require a great deal of discussion, and within these details lies much of importance to the proper distribution of costs. But as it is a matter more of placement within the Manufacturing Department itself, it does not seem in order to cover all these details with any explicit discussion.

In general, however, it should be remembered at this point that the ideal of the Controller's function calls for his functional jurisdiction at least over all the accounting and record procedures carried out by the Manufacturing Department. If therefore, it seems best to have much record and clerical work performed directly under the jurisdiction of the Manufacturing Department, it should be organized and carried out with due regard to the control of *how* things are done by the Controller, and every endeavor should be made by those in charge of these records and office procedures to reciprocate the cooperative attitude of an ideal Controller with an equally cooperative attitude of assisting in every possible way to make the record work most effective at the least cost.

There are a number of points, however, which, while we will not go into them in great detail, might be mentioned in respect

to the more or less moot questions in a manufacturing organization. There are usually many questions in respect to whether or not the maintenance work should come under the jurisdiction of the productive center foremen and superintendents. From the standpoint of cost accounting, and for control purposes, a great deal of attention should be given to this point. There is much to be argued in favor of having the various productive centers carry more or less personnel occupied in maintenance work, particularly when there is included under maintenance work the "stitch in time" preventative work which has proven to be so valuable in saving eventual maintenance costs.

In considering the maintenance work, however, it is very necessary to analyze the exact conditions in each plant. By this is meant that wherever machinery and equipment is liable to abuse and excessive maintenance on account of careless operation, and where there are frequent breakdowns from such causes, it has often proven of advantage to have a limited maintenance crew right within the productive center. In large operations such as rolling mills, it has been found quite advantageous to have maintenance men in constant attendance.

On the other hand, however, where the nature of the business is such that breakdowns and repairs are not extensive, there are very powerful arguments to prove that the maintenance work may be concentrated more advantageously under a maintenance foreman, master mechanic, or whatever he may be called.

Power, covering steam, electric, compressed air, and all other kinds, is another department which admits of considerable discussion as to its location on the organization chart. Often we find power and maintenance combined. This is quite logical, but in many plants, particularly large ones, it has been found of great advantage to separate the functions. In altogether too many plants, power is looked on as a necessary evil and has not been organized on a basis whereby it may be treated almost as a producing department. Management is often backward in buying a sufficient equipment of meters, not only for distributing the cost to the various operating departments, but in checking the operation of producing power, including electric, steam and compressed air. These commodities are expensive, and wherever the management has seen fit to purchase sufficient metering equipment to properly trace through consumption as well as the original production of

each commodity, large savings almost invariably have resulted.

Therefore, the placing of the Power function on the organization chart is again something which should be given very great consideration, not only from the standpoint of executive control, but more from the standpoint of fixing a responsibility to reduce the costs of these services, and in almost every plant much can be done along these lines.

It is difficult for me to cease discussing all the problems which enter into the setting up of a proper manufacturing organization. There are such things as the planning, dispatching, stores-keeping, time-keeping, plant engineering, tool rooms and tool cribs, trucking, (if such comes under the Manufacturing), yard activities such as general labor gangs, switching, and all such, and even other functions of like nature, the proper organizing of which has a profound effect on the success of a manufacturing institution.

But it is only possible here to impress again the fact that each and every one of these functions must be reasoned out on its own merits, and in all cases should be placed where it may best serve and where it may best control.

Sales Department

In the present day of rigid competition, the distribution function of every business has loomed up as one of the greatest problems of business. For years almost every other function of the business has been put under very rigid controls, while the Sales Department has gone on in a more or less extravagant manner and often with a badly organized procedure.

For purposes of discussion in this paper, we may regard the following distinct functions of a large Sales Department:

Publicity: Including all advertising—local and national—whereby the products of the business are kept before the public.

Sales Production: This function is that which assists in all ways along the lines of studying and creating markets, setting up new avenues for the disposal of products, devising new methods for selling products, and all such staff functions to the line selling forces.

Statistical: While much of the Sales statistical work may be done by the Controller's Department, there is always a lot of special Sales statistical work which must be done within the Sales Department itself. This division would concern itself very particularly with sales quotas, and all such.

Warehousing and Stock Distribution: This function concerns itself with the keeping up of warehouse stocks, beginning with the home warehouse and the distribution of stocks to various branch warehouses whereby service in the delivery of goods will be maintained to the best advantage and with the greatest inventory turnover.

Field Sales: This function is the firing line of the Sales Department, and depending on the size of the company, there are many very important problems in setting up this function, particularly in those companies which are large and require national distribution.

In setting up the organization of a Sales Department—or Distribution Department, if it should be so called—it is again the same old question of analyzing the conditions and finding out just how the various divisions of the Sales Department should be set up and related to each other.

It has been demonstrated many times that a man capable of dreaming out markets, new methods of selling, new applications of product, is often a long way from being fitted to conduct a field sales force. And so it is as between all the various functions of a sales department. High power salesmanship and steady business management are often difficult things to find in one individual. And yet, industry is full of so-called sales managers, and branch house sales managers particularly, who are really nothing but high powered salesmen and who are absolutely incapable by temperament of properly conducting a sales office as a branch manager. Therefore, the problems in respect to properly organizing a sales department, where so many business, clerical, financial and other matters have to be taken into consideration, are very intricate ones and call for a great deal of analytical thought.

If, however, the goal is constantly before one of having each and every department or division logically set up and related to

other divisions, it will become a comparatively easy job to outline how an organization should be set up.

Summary

It is very necessary to cease such detailed discussion of the problems within an organization from the standpoint of setting it up, as such a discussion could go on without limit. The problems in doping out a satisfactory organization procedure are many, even though they are not in themselves very difficult. The greatest requirement in an analysis of the problems in connection with an organization procedure is that of a clear head and an analytical mind whereby there may be worked out a plan where responsibilities may be definitely fixed, and where, after such responsibilities are outlined, there may be found the right personnel to fill the various jobs.

In simply setting up a proper organization plan alone, any business has gained a great deal, as its effectiveness is almost instantly increased in all cases where responsibilities and definite duties have been in a condition of obscurity.

But, you say, what has all this to do in a Convention of the National Association of Cost Accountants? Well, if all you want to do is to keep records irrespective of anyone to benefit from them, irrespective of anyone being responsible for bettering the results which your records show, and irrespective of whether the records reflect an actual combination which is susceptible to continual betterment, probably all this means nothing.

But if the records of an industrial institution are to mean anything at all, they must reflect a given responsibility and a given function. Records must be a live and useful instrument in the hands of management, and if management succeeds in its function of coordinating, bettering, and getting the most out of every function of its business, it must have records which give a measurement of how each one of these functions is progressing.

Therefore, if any method of accounting whatever is to reach its greatest value, it must be fitted to a distinct responsibility whereby it not only provides for the one responsible for some particular function the means whereby he may know what he is doing, but also how he may better his results.

But just knowing what is going on is now the least part

of the whole problem. After each responsibility is fixed throughout the entire organization, the first natural move is to create records to give the advantages just mentioned above. The next logical move, along lines of modern management, is to set up within each one of these records a budget of how well each one of these functions should perform. This, then, brings us to the important step of setting standards, and most certainly it is far from possible to set standards until we have the organized functions and the records within which to set the standards, and after the standards have been set to see whether or not the business is operating, at worse, or better than standard. This step alone, therefore, namely, that of setting standards, is in itself a value to the business which, in many cases, has amounted to most remarkable savings in cost. And when any methods whatever are tuned up to where savings may be made coincidentally with the setting up of standards, we indeed have something well worth while.

But we are not through with just setting standards, as the next move, and one of the most important—if not *the* most important—is that of setting up incentive methods whereby those who beat the standards and thereby save a lot of money for the company may benefit automatically by receiving a part of these savings in extra remuneration.

It is when we arrive at the point of setting up incentive plans that we reach the fullest realization of the tremendous value of having an organization set up on logical lines with clean-cut responsibilities and a distinct understanding of them. It certainly is obvious to everyone that no incentive schemes can be set up by departments without there having been provided a distinct alignment of such departments from an organization standpoint, followed up by properly equipped records, strengthened with adequate standards, and finally rounded out with a most powerful management adjunct in the form of extra remuneration when the standards have been beaten.

It is often rightly said that profits are made in far greater percentage when a man is operating a business which he owns and to which he gives unlimited and undivided attention. It is probably true that the great majority of our businesses in years gone by were built up in just that manner. It is perfectly logical that such should be the case, and it is perfectly logical at all times that wherever an individual is vitally interested—and this

usually means financially—in anything he is doing, he gives the business far greater attention with far better results.

Furthermore, whenever anyone is given even proper records, he takes a greater interest in whatever he is responsible for. Add to this the sporting feature of setting a standard to meet or beat, and work begins to come nearer to a game than the usual humdrum procedure so often the rule in our everyday work.

But now, add to this in each and every department of the business, and in every territory of your Sales Department, a financial interest through a division of the savings made by beating standards, and you will find that you have created a condition which is largely of the character of the little businesses of the past where the whole life of an individual as well as his fortune was tied up in his business.

Take, if you will, one of the lowliest departments of a business where there may be but eight or ten men with a low grade foreman. Let us say that he is just cleaning castings when they come in from an outside foundry. Give this low grade foreman full responsibility for his men, give him a record of how much it is costing him to clean up these castings, set a standard for him to beat and give him a percentage of what he saves over the standards which you have set, and in nine hundred and ninety-nine cases out of a thousand you will see these castings go through this department at a higher rate of speed or with fewer men than you ever dreamed possible. And so it will apply through every department of the business. In the Sales Department, a certain city territory will be reflected in the records with its own accounts, quotas will be set on the basis of past experience and expected business conditions, a budget of expenses will be set up to sell this amount of goods, and an incentive plan will be set up whereby a saving over the budget and through an increase in sales will be distributed in an equitable manner to those who are responsible for the better results in this district. Can anyone conceive of a more powerful instrument in the hands of management and for the men themselves than such a combination?

It will be noted in the comments made on incentive methods that mention has been made only of dividing savings which are made in connection with the standards of performance set up. Many failures have been recorded in so-called profit sharing plans. The main reason for this has been that there are but comparatively

few in any company who should be on a straight profit sharing scheme. The great majority of the key men of a company should be tied up to the results in their own departments without any reference to whether the company makes money or not. In the case of the little department just described where castings are cleaned, it certainly means nothing to that individual whether the company makes money or not if he cleans castings at a less cost than a perfectly acceptable standard set up to regulate his performance.

This same argument applies to any department whatever in the business, both in the producing and selling ends as well as in the general staff departments. In a little simple case such as the payroll department, a ratio must be set up as to how many people are allowed to a certain number of employees working. This may be reduced to dollars and cents, and if the payroll work is accomplished at a less cost to the ratio which has been set up as a standard, a division of this saving means far more to those who are in charge of the department than a division of a very intangible profit or no division at all if a loss is made in the business as a whole.

A branch sales office, operating a little business by itself will do its utmost in its own territory, and it is immaterial to them whether or not other sales offices meet their quotas, beat their budgeted expenses or not. Their interest is tied up in their own kingdom, and they should be rewarded on their own results if they succeed in beating the standards.

With the chief executives of the business, however, and the executive head of each of the main departments, we find a different condition. Here, these men should stand or fall on the profits of the business as a whole as it is their duty to so coordinate their efforts through the general management, that the business as a whole operates in a profitable manner.

Therefore, it is of utmost importance to everyone concerned with the accounting function of a business—which function is nowadays so often broadened into the realm of setting standards from which it is but a step to collaborating with the setting up of incentive methods—to have, first of all, a properly organized procedure, specifically designated departments, with responsibilities for each of these departments fixed on certain individuals, whereby a scheme of records may be set up and where every

dollar spent in record procedure will return its weight in gold rather than be a dead expense to the business as has been and is at present so often the case. It should be quite obvious, therefore, that in organizing a business for profit, the first step is that of the organization itself, as none of the other steps may be carried out with any degree of success without such definite organization procedure.

What can you men involved with the accounting function of a business do about it? That is a perfectly logical question, but it is a question which is easily answered in Yankee fashion by asking another question, namely, what can you do to set up records which mean something unless you do understand organization procedure? But, you say, supposing I do understand it and my management will not organize the business properly? Well, lots of managements will say that, but if each one of you under any such circumstances would make a careful study of your business along these lines and everlastingly peg away at the idea of properly organizing the business, fixing responsibilities where they belong, and thereby give you the opportunity to set up records which mean something, where standards can be set and where incentives may be applied, it seems absolutely beyond conception that any management in these enlightened days could stand any such pressure very long.

And again, perhaps your management does not understand the great advantage in completing the cycle with which this paper and the subsequent papers to be given during this Convention deal. No one of the four main steps of organizing, setting up proper records, setting standards, and setting up incentive methods will accomplish anywhere near as much alone as all four steps combined. Proper incentives, based on savings never can be set up, of course, unless you have a proper organization with fixed responsibilities. The setting of standards will be seriously handicapped, to say the least, if not also impossible, unless you have proper responsibilities and departmentalization. And while you may have a certain species of records, most certainly no records of operations can hope to be of greatest value unless they actually reflect a real and fixed responsibility.

Again, therefore, it may be stated that whether or not you have ever given any thought to the organization itself, or whether you think you may never have any influence with your manage-

ment in this respect, most certainly you yourselves, every one of you, can never expect or hope to reach any great pinnacle of success unless you very earnestly study and learn everything which has to do with the proper management of a business, organized to make a profit.

Again referring to the saying, "A cast-iron contract makes good friends". The friendship comes in knowing the contract can't be broken. Each party to the contract knows what he is doing, what he can do, and how far he can go, and how far the other party to the contract can go. So it is with organizations. When people know what their job is and when they know what the other fellow's job is, when that has been figured out on a logical basis, that word, psychology, applies all the way through. You want those duties known for the psychological effect on the other fellow.

Don't misunderstand me. I don't mean that cooperation is all that is necessary. With all of these things you have to have a spirit of management, a spirit back of all this to lead and coordinate. There can be the finest gentleman in the president's chair but if the men are running wild, if they don't know where they are going, they are like a lot of sheep, running under the fence here and there.

Get the organization; then fit your records to that. In the analyzing of the organization the queer part is that all of the rest of these steps become so easy. They become so apparent, and by building that foundation you are building a foundation by which all those other mechanisms properly founded and properly coordinated mean an enormous amount to the business.

PRESIDENT SWEETSER: The National Association of Cost Accountants has never been known to be a cheap organization. It is well financed and well organized. I made a quick calculation and figured that, at current rates for advice, we were preparing something like a half million dollars worth of advice for you in this Convention. I suppose there are three hundred concerns represented here. You can figure it out yourselves. I believe every man here ought to take advantage of an opportunity like this. I requested you not to go around after the meeting and talk to the speakers and question them. Mr. Jordan has his wife here and they want you to enjoy the Convention, and the other

speakers have many things they want to do. They are entitled to have a good time just as well as you are. Ask your questions, make your statements, disagree with the speaker, if you like, get up a general fight—do anything you want to, but do it right here. We want you to come forth with your questions. I know that Mr. Jordan will be glad to answer them.

J. J. NOLL (*Office Manager, W. Bentley Company, Incorporated, Niagara Falls, New York*): I wonder if Chairman Jordan would tell us the important difference between the Ford organization and that of General Motors. I thought it would give him an opportunity to illustrate some of his points. I want to know to a further extent the difference between functional organization and one-man organization, and I thought by taking those two organizations, Mr. Jordan could illustrate that better.

MR. JORDAN: As a matter of fact, from what I know of those two organizations, that is, the Ford Company and the General Motors, the one-man organization part of it, in so far as the Ford Company is concerned is Ford. When you get down into the organization, the two are not so far apart from a good many angles.

In the Ford plant the principle is that you have a man receiving a high day rate, and his principal job is to screw on about two nuts, the thing being to screw them on fast enough as the machine goes by—you have to do it quickly. This is an incentive scheme, the incentive being that if you don't screw on those two nuts fast enough, you're out of a job. Other companies have used the same scheme in certain departments.

As to the General Motors organization *vs.* Ford, it is a very difficult question to answer as to the real differences, and I don't believe any human being can answer it. Ford set up a volume production through men that he paid handsomely, whereby the very volume and speed with which things went through and by that very method of paying high day rates, and pushed into doing that work by the methods figured out by engineers, and which was originally the only one of its kind, he created a *compulsory incentive.*

In the General Motors organization, which came along later, they had an entirely different start. They had to catch up with

Ford. They had their manager's corporation. Those men have all been made wealthy men. There is a wonderful spirit throughout the organization. Probably the success of the General Motors has come about more through the building up on an irresistible spirit of thrift, cooperation and super-accomplishment, through the use of schemes of profit sharing, where everyone produced as a result of psychological impulse rather than from the force of *do this or get out.*

I am not pretending to answer that question. You have asked a question about an enormous proposition.

MR. NOLL: Does this compulsory system displace the standard costs?

MR. JORDAN: There is a thing that has given a great deal of trouble, where they haven't the money. In the majority of plants where you haven't that enormous volume going through, you have to come to the psychology of the incentive for the individual to put it through, rather than pressure—it must be psychology pressure rather than speed. It is the difference between force and voluntary action of psychology.

H. E. SONES (*Cost Accountant, Lycoming Manufacturing Company, Williamsport, Pennsylvania*): Assuming that you have a well organized company, is it advisable to follow through with standard instructions covering procedure under general conditions?

MR. JORDAN: I have often described in my experience an organization chart and manual as the "what" is covered, the "what" is to be done, and that is as far as an organization chart and manual should go. A purchasing department buys and supplies goods, but as to "how" is a matter of standard practice. Be sure to confine your manual of organization to the "what" of the thing it covers. But most assuredly there should be the following through with the standard practice of "how" to carry on.

G. A. ROTHRAUFF (*Auditor, Macbeth Evans Glass Co., Charleroi, Pennsylvania*): Mr. Jordan made the statement that

before you could proceed with standard costs you have to get your organization lined up. In a great many organizations there are "Jims" and "Bills" and "Sams" who are permanent fixtures and for many reasons can't be dislodged at once. Don't you think some standards can be set up that will bring out facts to hurry along the definition of functions and the set up of the organization? In other words, can't we have standards set up without having the organization set up first?

MR. JORDAN: In the many years in the history of industrial engineering it overlooked a bet and that was that it confined its work to direct labor organization. I still maintain that when it comes down to what in many businesses nowadays is the greater expense, the burdens, departmental expense, the break down of those and the part of the cost of the business which usually breaks it, I don't believe that until you fix responsibilities you can very effectively fix or set standard of expenses.

GEORGE H. FRIESEL (*Treasurer, U. E. & F. Company, Pittsburgh, Pennsylvania*): Following up Mr. Rothrauff's question; if it is not possible to have these "Sams" and "Bills" each made responsible for certain functions and expenses why can we not enter through the back door, as it were, by setting up standards regardless of this condition? When figures reflecting actual accomplishment are shown against these standards and the "Sams" and "Bills" start shifting from one to another the responsibility for discrepancies, the "Big Boss" will see for himself that nothing can be accomplished until some one person is made responsible for each function or expense. If the "Big Boss" is a big boss in more than name only, he will then see that a proper organization is set up.

MR. JORDAN: I think that may be possible. I think that possible if you can get a fair distribution of the overhead and without the responsibilities definitely fixed—and as I get Mr. Friesel's point, that once these indirect statements and budgets are set and they don't come through, the post-mortems of getting these individuals up "on the carpet" and finding out who is responsible for it any way will bring out the deficiencies. I wouldn't doubt but what that might work in some or many cases.

PRESIDENT SWEETSER: If you can't be a controller, act like one.

C. H. TOWNS (*Partner, Loomis, Suffern and Fernald, New York City*): These last two questions have been asked apparently by men who are looking for an entering wedge which the accountant may use in opening up the way toward change to the right form of organization.

I would like to ask Mr. Jordan, if he is willing to answer the question put in a little different way, as to what other opening wedges an accountant may use which will be helpful in showing the people at the top of the business that a proper organization should be set up.

MR. JORDAN: That is a good deal like "how many gallons do you use in your car?", without giving me some idea of the make of the car, and so forth. That comes up to what I was trying to say a moment ago, that it all depends on your own personality and your own individuality and your own resourcefulness.

I would say if you could get some explicit cases of where money has been lost, some explicit cases of where there have been high costs, explicit cases of where slips have taken place, where you can show it in dollars and cents—that would help. I tell you today every movement in industry can't be overlooked; if you will put up something with a dollars and cents value, if you will locate or can locate a number of these slips whereby you can put up dollars and cents, where such and such a thing has happened, that's the thing to do. First of all, you have to study your business. The great troubles with most controllers and men in charge of costs is that they are figure mechanics too much and don't understand the business itself. First of all learn your own business and know what everything means. If you can't express it in dollars and cents—develop through your chapters, develop getting up an argument and arguing things out, develop your own report writing ability, develop your own arguments, keep cool and don't get angry. Get down to brass tacks and put up a reason. You see it comes right back to the individual every time?

N. J. BOWNE, (*Cost Accountant, The DeLaval Separator Company, Poughkeepsie, New York*): Under what department

does Mr. Jordan believe a department which sets up standards for the performance of mechanical or direct labor should come?

MR. JORDAN: Under the manufacturing department, I would say, without any question whatever. As you go on further through this convention and the mechanisms we are going to discuss you will see that the principal key men of the manufacturing organization are tied up with an incentive method based on budgeted cost, hooked up with the product as closely as possible, and the setting of labor standards within a man's particular department becomes a mechanism whereby he may cut down the costs in his department. Furthermore, theoretically and actually a manufacturing department is a technical job. The manufacturing operations are technical. It is a job which primarily is a manufacturing function, so, therefore, the setting up of the actual methods of doing that work is something which should come under that department. That is part and parcel, in my humble opinion, of the manufacturing department, and if any one else tries to tell a manufacturing superintendent how to make his goods, how long he should take doing it, which is a part of his job, that person is removing from him the responsibility which must be placed distinctly upon him, and in so doing he will be relieved of that responsibility.

HOWARD C. ZOOK, (*Cost Accountant, Wooster Brush Company, Wooster, Ohio*): Who in an organization should have functional jurisdiction over the cost department?

MR. JORDAN: In answer to that question, I would say it all depends on the size of the company. That must be reasoned out. In a large company where the cost departments are around in the manufacturing departments, for the best psychological effect and if there is a controller, who is onto his job as controller, a man who knows his job and is a true type, it should be under the functional jurisdiction of the controller.

In any event the accounting methods as they are tuned in for accounting controls must be under the functional jurisdiction of the head in charge of accounting. But when it comes right down to the exact methods, if a controller has made it his business to know manufacturing as he should—and if I could only say con-

troller and feel certain you all agree and know what a controller ought to be—I could say, without hesitation, it should be under his jurisdiction. If a controller is nothing but a chief bookkeeper, then I'll say it had better be under the jurisdiction of the office boy—I guess you get the point.

Here's another question.

G. A. MOE (*Cost Accountant, Office of the City Comptroller, Minneapolis, Minn.*): In municipal procedure of cost accounting, is it proper to allow the Director of Public Works to keep the cost records and compile cost statements?

Also, should the cost accountant of a city be under the supervision of the City Controller or the Director of Public Works?

MR. JORDAN: In answering that I would say it would seem quite possible, although I admit I don't know much about municipal work—and there again we have an entirely different proposition—a controller is an elected man. He is elected because he has a lot of friends. It isn't reasonable to suppose many of them are elected on their knowledge of what we are talking about today. But if there could be gotten into the city government some kind of a business régime, I would say the same rules should apply —that a controller should be a controller—in fact that he should know what is going on in the city. These departments are nothing more nor less than manufacturing departments. They are making gutters, streets, putting up lights, and everything of that sort, but when we go around the streets and see one man working at the speed of one hundred and twenty-fifth of one man per day, with four bosses over him, what's the use of talking responsibility?

G. A. WARE (*Assistant Secretary, News Print Service Bureau, New York City*): Suppose we have a controller of the kind you are talking about and he is responsible for the facts, why should he, in his functional responsibility, report to the treasurer? Why shouldn't he report directly to the boss?

MR. JORDAN: I would say, under all circumstances, that the type of man we are talking about should report to the chief executive and not to the treasurer. I didn't mean to convey that idea. The controller should report to the chief executive.

MR. WARE: May I suggest that in this chart he comes under the treasurer?

MR. JORDAN: Take it off. I'll tell you why that was there. This was done simply to dispose of those four men and it happened that Bill was billed that way and that the president wasn't. I should have gone into greater detail there, but in the general conduct of the business, the controller should report to the chief executive. These charts were drawn four or five years ago. I cut them out and had them rephotographed. At that time it was a transposition of a bad condition to a better one.

HUGH E. WALL (*C. P. A., Wall, Hardman and Lane, Dayton, Ohio*): Mr. Jordan, in stating the fact that controllerships do not apply readily to municipal organization, I believe that as soon as the city manager form of government is adopted such an application can be made.

EDWARD P. RUSH (*Public Accountant, Cincinnati, Ohio*): In applying functional control in a national organization, I understand Mr. Jordan does not advise the control of physical properties, but functional control as to method only. I wonder if he would give us additional illustration as to how he secures full cooperation between the two responsibilities and avoids overlapping of ideas?

MR. JORDAN: I apparently didn't make it clear. I didn't mention properties at all because it is assumed the properties are under the control of the branch managers anyway. The difference of opinion that comes is this. Here's the purchasing department in a plant one thousand miles away. They have to get all kinds of small supplies and they have to get them quickly, but as they get up into those supplies where other plants also have volumes of the same materials, there you begin to get into central control. Who will confine the methods as to what extent they will purchase? They can be submitted where, combined with others, they will enter the contract stage—bought in the contract way—and each plant requisition from that. You have two, three, four, or five different kinds of reports and these reports can't be coordinated into a combined profit and loss account, so it must be in the

hands of the controller's department to say how the records shall be kept, but the actual keeping of those will be under the jurisdiction of the branch manager. That is the physical jurisdiction I am talking about.

ROBERT W. PEDEN (*Treasurer, Mueller Brass Company, Port Huron, Michigan*): In a jobbing business where deliveries are very important, should the correspondence and telephone contacts with customers clear through the sales organization or through the production department? Where should your schedule of the production department fit in the organization?

MR. JORDAN: There you go again into an analysis of an operation into a situation as it exists. There I'll admit the personality has to come into it more or less. Personally I believe, in so far as possible, with a management that preaches fair play, with a management that insists that the sales and the manufacturing departments cooperate and coordinate their work with other departments, that the contact with the customer be confined to the contact department which is the sales department. But on the other hand, I know exacly what you are driving at, and there are so many sales departments—and it is a reflection on the general management—that, in order to keep a sale or make a sale will say, "We'll ship your goods next week", when they know good and well they can't be shipped for a month.

I say that is a matter of organization procedure, as to the management. Many times the cure for that must come through the management, if they have obstinate men in the sales department, by putting it into a disinterested service department which will serve alike truthfully and above board both the sales department and the manufacturing department. That is a good cure in many cases.

As to the scheduling of production, that is primarily a manufacturing operation. There again it comes right back to the management as to whether or not you have the proper spirit in the management, and whether the sales department will give true facts, and then the manufacturing department come through true blue to protect those facts where promises are given reasonably, where the manufacturing department is consulted for true facts.

The manufacturing department should operate and have in its hands all the mechanisms to manage the plant properly. You are starting in and disobeying psychology again when you have a plant where some one outside of the bailiwick of manufacturing is going to tell them what they will put on the machine next, no matter if they know it better than the manufacturer. You do the damage of making the man in charge of the manufacturing department pass the buck. Don't you see how it is—somebody else is telling me how to run my shop. You have to get the true facts from the manufacturing department. The manufacturing department must tell the truth to the sales department, must have knowledge and close working with the sales department so they know they won't have anything to manufacture if they don't give service to the sales department.

Then when that is done—human nature after all will level itself down—if each one is truthful and honest and doing his best. Therefore I would say the ideal way is to confine contacts with customers to the sales department, which is the contact department; and second, the scheduling should be in the hands of the manufacturing department—but they must work hand in hand.

PRESIDENT SWEETSER: It is now almost twelve o'clock, and this session is declared adjourned.

SESSION II

SETTING UP THE RECORDS TO FIT THE MANUFACTURING ORGANIZATION

TUESDAY AFTERNOON, JUNE 18, 1929

This Session Was Organized Under the Direction of

H. G. CROCKETT

Scovell, Wellington & Co., New York City

WILLIAM BAUM received his college education in Germany, being graduated from the Technical College of Karlsruhe as an electrical engineer. He was associated for some time with the General Electric Company and worked with the late Dr. Steinmetz. He represented that company for a time in Europe. At the outbreak of the World War, Mr. Baum returned to the United States and became Dean of the School of Engineering of Milwaukee. In 1920 he became the consulting engineer for a number of industrial organizations, including the Holeproof Hosiery Company, the Milwaukee Electric Railway and Light Company, and the Goodman Hosiery Mills. Since 1925 he has been industrial engineer for the Real Silk Hosiery Mills. He has presented papers before a number of our chapters and National Conventions, and is the author of numerous articles of a technical and business nature. He is the president-elect of the Indianapolis Chapter.

THOMAS R. JONES is a Graduate Engineer and an alumnus of the Harvard Graduate School of Business Administration. He spent two years in the army during the War organizing army supply functions. For five years he was Manager of the Tractor and Auto Motor Factory of the Moline Plow Company, and served as Assistant General Manager of the Cincinnati Milling Machine Company for another five years. He is now Vice-President and General Manager of the Harris-Seybold-Potter Co.

SETTING UP THE RECORDS TO FIT THE MANUFACTURING ORGANIZATION

PRESIDENT SWEETSER: We want you all to get the idea of this convention being a coordinated activity. Each of the sessions has been planned to make up a complete whole and for that reason Mr. Jordan will be recognized at the beginning and close of each session for the purpose of carrying us across this bridge of coordination and bringing the sessions together more in harmony than otherwise might be possible.

MR. JORDAN: There isn't so much to say at the beginning of this session on account of the fact that we tried to make it clear this morning of how we must have organization in order to have records, and we must have records to have standards, as a usual thing, and we must have standards to be able to pay incentives. Then we must have all these things from the standpoint of psychological effect to help out the management in making money. It does not take the place of management.

This afternoon, this session is on the matter of fitting records in the manufacturing end of the business to the responsibilities which have been set in accordance with the talk this morning. We are going on the basis in this convention as if nothing existed. Somebody has some capital and builds or buys a plant and is going to start up a business, or we are going to revamp an old business. We, first of all, have to analyze the jobs. That was what we talked about this morning.

Incidentally, although I admit that was what we asked you not to do, a point was brought up during the noon hour as to whether or not when an organization was planned out some adjustments wouldn't have to be made in connection with the personnel, and whether or not an organization should be planned out without taking into consideration the personnel. That is a point that is worth bringing up.

An organization plan might better be figured out without any thought for personnel. Then after the scheme and plan is carried out you look through your personnel for the men who can best do those jobs. Sometimes you have to give way a little on the ideal you have picked out on account of the men you have. Other times an analysis will show you haven't the men who will fit those jobs right and you have to do something else. That's a good point. I should have spoken of it this morning.

Now, we have gotten along to where we have analyzed our organization and we are ready to know what we are doing. This session this afternoon is on the manufacturing department working from the standpoint, I hope, from what the organization needs in a line of knowledge to back them up in what they are doing so that the management can have a control, not from the standpoint of bringing people in and pounding on the desk, but from cooperative service control of helping those responsible men to do the best they can.

The session is intended to bring out the records necessary from that standpoint.

PRESIDENT SWEETSER: I think you all would have been interested had it been possible for you to be present at the meetings of the Board of Directors in planning out this convention. We have remarkable talent in this association and we had to select men who could present these matters properly.

This afternoon the session, "Setting up the Records to Fit the Manufacturing Organization", is in charge of Mr. Horace G. Crockett of Scovell, Wellington and Company, New York City.

CHAIRMAN CROCKETT: I wish you could have attended some of the sessions we had in trying to get this program organized. You cannot do anything with a session of this kind unless there is organization, particularly with a subject of this kind. We have had a lot of hard work in just getting it organized, getting the right kind of speakers and men to prepare papers, and getting our ideas over to them so that these meetings would present a well-rounded picture.

Mr. Jordan has told you of the kind of an organization necessary to operate a business efficiently and profitably. He has

told you that after organization, the next thing to do is to decide what manufacturing records are necessary for the efficient control and operation of the business. By manufacturing records I mean all of the records necessary for the operation and control of all manufacturing departments and functions.

We have a lot of manufacturing concerns in this country which, of course are a good many years old. They have just grown up and expanded and changed. We do not often have the opportunity to start a business fresh and decide, from a purely theoretical and scientific point of view, the kind of records we want. We are all hampered mentally and perhaps physically with existing records. Yet in the last few years—at least since I have been in professional work—I have seen many instances of entirely new organizations and new businesses set up where the usual plan is, "Let's get the business going; we'll worry about the records later on. We'll perhaps keep a pay roll; we'll have a cash book and we will do the things that are essential." We all know the turmoil that results from such a situation.

I would like to stress the point that it is perfectly possible to analyze a situation thoroughly, knowing the kind of business you are going to go into, to set up the organization you are going to have, and then the kind of information you ought to have. While it is a little bit hard to do I don't see any reason why you can't forget all the existing records you have in your plant today and think of the kind of information you ought to have.

I have never seen a plant yet that hasn't a lot of non-essential records that are not particularly useful or are not prepared in the best possible way. If you try to suggest that they be changed or put out, you get the answer, "It doesn't cost much to get that; we have had it for years, why not continue it?" It is so hard to throw off the old and get something entirely new, yet isn't that a sensible thing to do? Forget everything you have at the present time and decide from a scientific point of view, the kind of an organization you ought to have to control effectively your business, and the kind of information you ought to have. Obviously, the nature of the business will help you determine that.

In these conventions and in Chapter meetings generally, we have tried to get men as speakers who will tell us the method they follow in their particular business. An audience is more impressed when a man tells "how he does it", and illustrates it.

On the other hand, the audience will say, "That's all right for your business, but it doesn't fit mine", because in all industries I have never seen two plants exactly alike in organization, physical arrangements, or anything else.

In selecting the men to present the papers to you this afternoon, I have chosen men who are putting into practice the things they are going to talk about and yet they will present them in such a way that unless you were told you wouldn't know their individual business connections. So, in spite of the fact that they may not stress the point as to what kind of an industry they represent, please have in mind that what these men are telling you is something they are actually doing, and you ought to see that it is possible to apply that to your own business.

In my opinion this whole subject of business records, not only manufacturing but all others, needs thorough study. There are so many which are of little or no value. I do not mean the really basic and essential data which are necessary in some form or other, but innumerable auxiliary records kept to satisfy somebody's hobby or because somebody might want the information some time. Unused records are not only costly but they create a rather unfortunate feeling in the minds of the clerks. They realize they are doing something that nobody pays much attention to, and that is a bad spirit to get into your organization.

There are going to be two papers this afternoon. There will be discussion, of course, as there always is, and these men are going to be ready to answer any questions you may ask.

No matter what you are making, the success of your business depends almost entirely upon the organization, or rather upon the people who make up your organization; and yet I think if there is any one detail in manufacturing records that is neglected, it is proper records of labor itself. Therefore, I selected a man who has made a particular study of that particular problem in his plant, and it is my very great pleasure to introduce to you at the present time, Mr. William Baum, Industrial Engineer of the Real Silk Hosiery Mills, Inc., Indianapolis, Indiana.

ACCOUNTING FOR LABOR EFFICIENCY

WILLIAM BAUM

Industrial Engineer, Real Silk Hosiery Mills, Inc., Indianapolis, Indiana

Economic Significance of Man-Power

THE subject of the Human Factor in Industry is not a new one. The operation of weekly manufacturing budgets tied in with a vigorous control of individual performance records presents a most important procedure which has greatly contributed to the profitable operation of many industrial enterprises. Manufacturing methods, equipment and materials are pretty well standardized under present-day competition, and accounting records pertaining thereto, have been thoroughly treated. It appears, however, that the accounting of the human effort has not been given the attention which it deserves.

To realize fully the relative importance of the human effort in production, reference is made to the following table tabulation No. 1, which was published by W. Thomas in the March issue of the "American Economic Review", 1928. It gives the growth of American manufacture since 1899, together with the output per operator. This tabulation, shown graphically in Figure 3 is based upon the Census, with an index of 100% for the year 1899.

Tabulation No. 1

Growth of Manufactures by Census Years, 1899–1925

Index Numbers 1899=100

	Quantity of Output	No. of Persons Engaged	Output per Worker
1899	100	100	100
1904	122	117	104
1909	159	145	110
1914	169	156	108
1919	214	204	104
1921	170	158	107
1923	261	197	132
1925	275	187	147
1927 Estimated	280-3	182-6	151-5

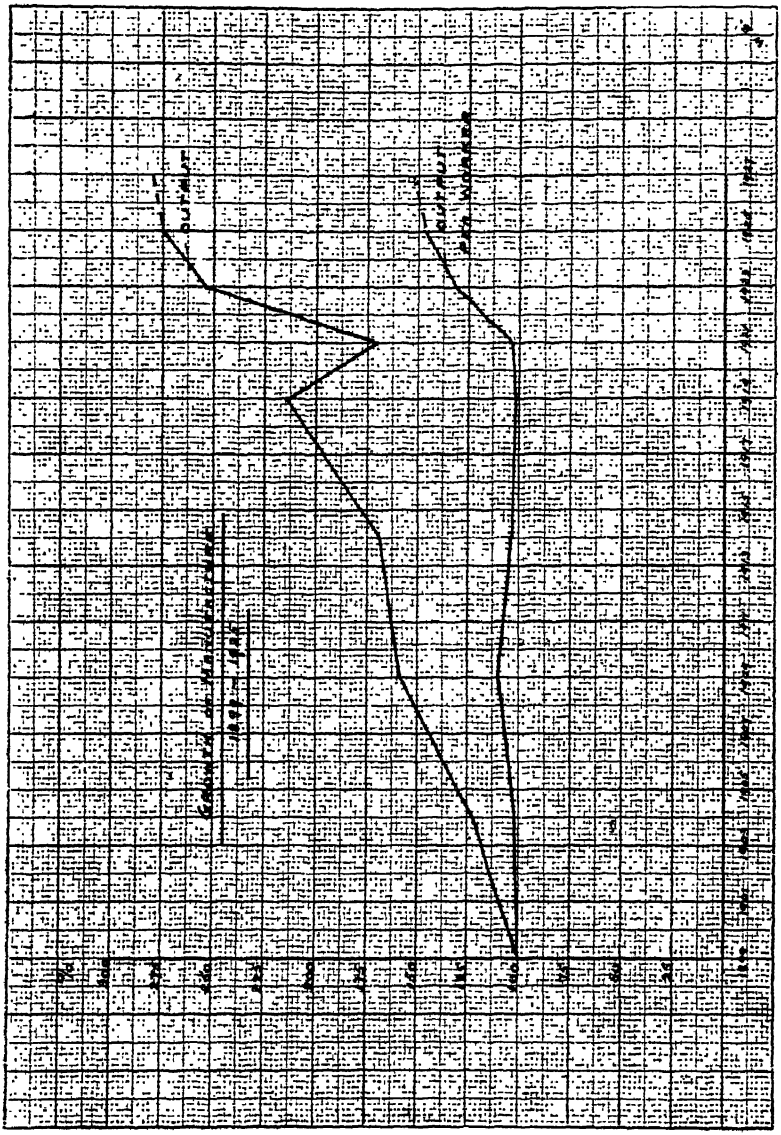

FIGURE 3

We witness an astounding increase in production, particularly since 1921, accompanied by an increasing output per worker from year to year. These tremendous changes in American industry are due largely to mass production, the mechanization of production, more efficient processes, routing of materials and products, avoidance or lessening of worker's fatigue, modern wage-incentive plans and other causes. In all these development, man-power and human efforts are playing a part of major importance.

In an article in the "American Economic Review" of March, 1928, C. W. Cobb and P. H. Douglas made an attempt to determine the relative influence of "labor" and "fixed investment" upon production. Their conclusions are that the labor factor has three times the effect of "fixed investment" upon production. Thus, the efficiency of the individual worker and the conservation of human effort are among the major factors which determine the success or failure of an organization.

In this connection, it is of interest to state that, according to the United States Department of Commerce, 40-50% of all concerns making tax returns, show a deficit. This poor showing is not restricted to periods of business depression, but remains practically constant from year to year. Many explanations are given for these conditions. Inefficiency is usually the main cause. Industrial establishments can exist only as long as they are able to manufacture and sell their products as well or better than their competitors. If an establishment shows wastes of equipment, material, energy and time the cost to the buying public increases, sales decline and deficits become unavoidable. Therefore, means must be provided for affecting a close check upon all activities of the organization through proper managerial control.

Units of Measurement

Waste due to labor is elusive. It occurs constantly without adequate knowledge on the part of the management. It causes loss in materials and loss in possible production due to labor turnover, absenteeism, tardiness and proper application of man power. To measure these losses, rational standards must be provided. The use of cost figures which involve variable prices, do not assist in correct deductions of performance records. Although the ultimate gauge for measuring the efficiency of labor is found in the

cost of the finished product, allowances must be made for increases or decreases in wages and material prices. Therefore, it is preferable to measure the consumption of material in terms of quantity and the use of man-power in terms of time.

The wider use of time standards for expressing the efficiency of manufacturing operations has received a new impetus through the recent publication of an exceedingly interesting and important paper, presented by L. P. Alford and J. E. Hannum before the American Society of Mechanical Engineers. The authors established the time factors "Kilo-Man Hours" as the common denominator for a group of management ratios and showed comparisons of these ratios for different industries. These ratios are:

Physical Volume of Product per KMH
Number of Workers per KMH
Fixed Capital Investment in Dollars per KMH
Square feet of floor area per KMH
Machinery Investment in Dollars per KMH
Horsepower utilized per KMH
Number of lost time accidents per KMH

There is no question that the Man-Hour is the most convenient and best adaptable unit for measuring labor efficiency. Through modern time study, all production efforts are reduced to comparable time units. In subsequent discussions, the efficiency of labor is defined as the relations which the sum-total of the hours allowed as standards bears to the sum-total of the hours actually employed. Thus, we have the formula:

$$\% \text{ Efficiency} = \frac{\text{Standard Man-Hours}}{\text{Actual Man-Hours.}}$$

It is apparent at once that the use of this formula permits the measurement of the average efficiency of an individual worker over an extended period, as well as of a single group or of several groups of individuals over any given period. Performance records based on Man-Hours without inclusion of unit prices have the advantage that all productive efforts are measured against a common standard and that they are readily obtainable in their original classification.

Performance records are unreliable and misleading as a measure of application unless their introduction is preceded by standardized operating conditions. This standardization expresses itself

in continuous straight-line production; in the installation of the best machinery compatible with economy; in the maintenance and overhauling of existing machines and their proper feed and speed; in reliable supply of power; in adequate lighting, heating and ventilation. When working conditions are standarized, it is possible to establish definitely what can be accomplished. The records of actual accomplishments as compared with the possible accomplishments will disclose deficiencies and indicate where efforts can be directed intelligently to secure the needed improvement. It is this continuous control of man-hour consumption which results ultimately in a high state of labor efficiency.

Budgetary Control for Foremen

It is a well established fact that Foremen can contribute greatly to a reduction in waste. In the past, the Foreman had to produce economies without guidance, without a knowledge of costs, without systematic records showing what he was expected to accomplish and what he actually accomplished. In progressive organizations, the Foreman is considered the Business Manager of his department, who is entitled to a full knowledge of accounting records and is held responsible for the profitable operation of his department. As Business Manager, the Foreman not only must get his work done with maximum speed and quality, but he must be able to locate existing deficiencies and introduce constructive improvements. Besides being able to handle his men and cooperate with other departments, he must have an intimate knowledge of the equipment and materials which are used in the operating processes in his department. The accomplishment of the desired results is greatly facilitated by the operation of budgets especially designed for the use of Foremen.

It is useless and, in fact, a hindrance, to include in the Foreman's budget items over which he has no immediate control, as, Taxes, Insurance, Uncontrollable Salaries and Investments. On the other hand, his budget should include Direct Material, Direct Labor Time and Indirect Labor Time.

Figure 4 specifies the type or style of the products which are to be manufactured during the week under consideration. This form also shows the estimated deliveries in quantities, the standard unit quantity and the total estimated quantities. Against these figures, records are given which permit comparisons be-

DIRECT MATERIAL
WEEKLY GAIN AND LOSS REPORT

FOREMAN: L. E. Pratt Department #18 Week Ending: February 11th, 1929

Type or Style	BUDGET			ACTUAL			Gain per Unit	Loss per Unit	Remarks.
	Delivery	Unit Material Quantity	Total Material Quantity	Delivery	Total Material Quantity	Unit Material Quantity			

FIGURE 4

tween standard and actual accomplishments, resulting in either a gain or a loss per unit quantity. In analyzing these statements, the Foreman may trace large spoilage of material and avoidable waste. Whatever the conditions may be, he has at his command a compass which shows him where to improve conditions and save his company money.

Figure 5 gives an example of a Direct Labor Gain or Loss Report. The estimated or budgeted unit man-hours are based on time studies. A comparison is made with the actual unit man-hours revealing either a gain or a loss. A study of the Direct Labor Budget may reveal that the right man was not placed on the right job. The Foreman may realize that he has not secured the cooperation of the worker. The training and instruction of new workers may be inefficient and faulty. Suitable wage-incentive plans may be lacking and a large number of men may be working on day rates. Labor turnover may be excessive. At any rate, the Direct Labor Budget gives the Foreman all the data necessary to increase the individual productivity of the workers under his jurisdiction.

While Direct Labor includes all time efforts applied to production, the Indirect Labor Budget deals with labor which cannot be allocated to the cost of a particular unit of product, such as that of sweepers, inspectors, instructors and clerks. In the interest of efficient operation, Indirect Labor should bear a definite ratio to the production. For this reason, Indirect Labor time is expressed in per cent of Direct Labor time.

In Figure 6 the estimated or standard Indirect Labor percentage is compared with the actual percentage. This record is of great value to the Foreman in adjusting the indirect personnel to the fluctuating volume of production. There is, of course, a limit beyond which the Foreman cannot go. Certain people must be kept on the payroll irrespective of the volume of production. But a careful analysis often will reveal the possibility of reducing the personnel which was thought to be indispensable.

There is no intelligent Foreman who does not appreciate the great importance of keeping his overhead expenses down and there is no reason why the Foreman should not be supplied with a Manufacturing Expense Budget, showing him details of idle machines, accidents, power, light, heat, repairs, etc. Such analysis, however, would presuppose that the Foreman has a knowledge

DIRECT LABOR
WEEKLY GAIN AND LOSS REPORT

FOREMAN: L. E. Pratt Department #18 Week Ending: February 11th, 1929

Type or Style	BUDGET			ACTUAL			Gain per Unit	Loss per Unit	Remarks
	Production	Unit Man-Hours	Total Man-Hours	Production	Unit Man-Hours	Total Man-Hours			

FIGURE 5

of the usual intricate method used in the distribution of overhead expense. As a rule, he does not have this knowledge and in order not to confuse him, the Manufacturing Expense Budget is omitted in our discussion.

Individual Performance Records

Among the most important factory records are those which register the quantity and quality performance of each individual. It is impossible for the management to be directly in touch with the progress made by each worker, particularly in large organizations employing thousands of workers. In view of the importance of placing labor efficiency on the highest possible level, means must be provided for affecting continuous control.

The follow-up of progress made by new workers and beginners offers a fruitful field of saving money. In a highly skilled operation in hosiery manufacturing, for instance, the cost of training a man is in the neighborhood of $1,000.00. This cost includes the time of the foreman and the instructor spent on training, the cost of excessive wages paid, extra material, machine repairs and breakage, spoiled work and waste. An exhaustive investigation was made to determine what the progress should be of an average apprentice operating a machine, after he had received several months' preliminary training. The result of this study, which was made over a period of a year, is shown in the following tabulation:

Standard Progress Schedule

Months of Service on machine.	% Efficiency.
1	80
2	83
3	86
4	87
5	88
6	88
7	89
8	89
9	90
10	92
11	95
12	100

INDIRECT LABOR
WEEKLY GAIN AND LOSS REPORT

FOREMAN: L. E. Pratt Department #18 Week Ending: February 11th, 1929

Acc't No.	Description	Direct Labor Man-Hours	BUDGET		ACTUAL		GAIN OR LOSS		Remarks.
			% of Direct Labor Man-Hours	Total Man-Hours	Total Man-Hours	% of Direct Labor Man-Hours	This Week	Acc'd for Quarter	

FIGURE 6

These results are shown graphically in Figure 7. The curve has the typical characteristics of beginners, already observed by Carle M. Bigelow. When the worker has reached about one-half of the training period, progress ceases for a while and then rises rapidly toward the end. Standard progress expresses the ratio of expected hours to actual hours, against which is plotted the actual progress of the beginner. This procedure permits a close check and avoids large expenditures for training in case beginners prove during the first few months that they are unsuited for the operation.

Another performance record which is of equal importance pertains to the progress made in quality. In the particular operation in question, the production of each beginner is inspected carefully. The imperfections are classified in great detail and expressed in per cent of the output. A continuous record is kept of these percentages for each individual. If it is shown that a particular beginner is deficient in any particular detail of the work, he receives special attention and instruction. In this way, wrong habits are killed in their inception, the progress of the beginner is accelerated and men unsuited for the work are eliminated at the very start.

It is not sufficient, however, to keep individual performance records of beginners only. The efficiency of many experienced operators fluctuates from week to week. As long as these fluctuations are small, no further attention is required. However, when a large decrease in efficiency occurs, an immediate investigation is made. The loss in production or quality is either chargeable to the worker or the management. In either case, the facts are ascertained and followed through until the proper remedies are provided.

Not long ago, the records of an experienced operator in excellent standing showed a sudden decrease in efficiency. The forelady was unable to explain the matter and upon questioning the worker directly, she stated that she had not been feeling well, and complained of a pain in her side. The girl was taken to her doctor who performed an immediate operation for appendicitis to save her life. She recovered and is back on her job at her usual high efficiency. Three hours had elapsed between the discovery of her low performance and the operation! In other cases it was found that poor eyesight, unhappy family conditions, personal debts and worries were the cause of poor performance rec-

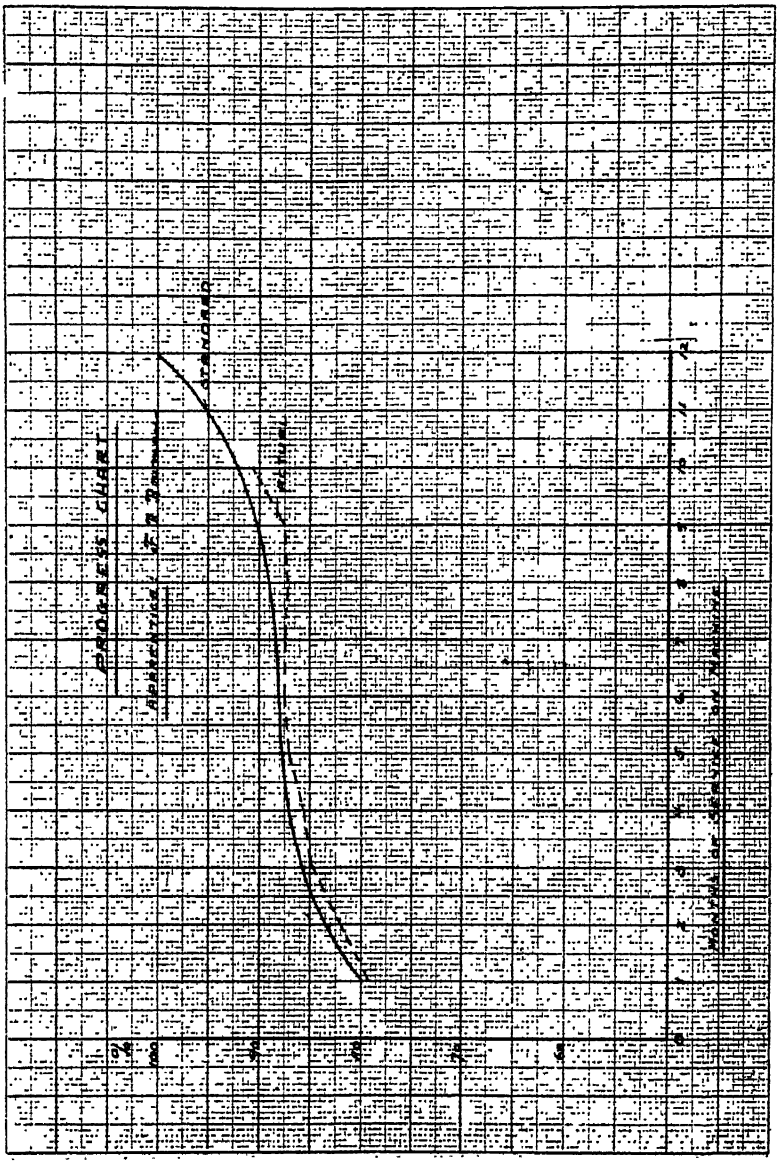

FIGURE 7

ords. Matters of this kind are referred to the Personnel Department for further action. In other cases, low productivity is caused by machine troubles, waiting for materials, defective materials, unbalanced wage conditions, lack of financial incentives, poor operating conditions and excessive fatigue. These matters are referred to the factory management, which provides the proper remedies. The control and follow-up of individual records, as per Figure 8, gives a wealth of information which could be obtained in no other way and leads to an impartial, fearless investigation of all the factors involved.

In like manner, the efficiency of the entire department is recorded and compared with that of other departments without inclusion of wage rates. A true picture of the labor efficiency in this way is obtained in the entire plant.

No performance record is complete without considering the factor of quality. Where inspection of the product or part of the product is provided, records are kept of the defects which are expressed in per cent of production. The quality percentages for each individual worker are shown together with the production efficiency records, as per Figure 9.

The control of production and quality performances of individual workers through accounting systems of this kind has been tried out in practice for a number of years. The results obtained are directly proportional to the energy and efforts put into this work. Standardized operating conditions are essential to its success. Moreover, wage incentive plans designed to meet the peculiar requirements of the operation and the workers are of the greatest assistance in reducing labor costs and wastes. The treatment of this important subject, however, is beyond the scope of this discussion.

Organization for Controlling Labor Efficiency

Accounting methods for controlling labor efficiency can be applied in most industrial enterprises. In larger organizations employing thousands of workers, the cost of doing this work is substantial. However, if individual performance records are properly utilized, to affect economical expenditures of human energies, these methods not only pay for themselves but become a source of greater profit.

INDIVIDUAL EFFICIENCY RECORD

Foreman: L. E. Pratt Department # 18 Quarter 1929

$$\% \text{ Efficiency} = \frac{\text{Standard Hours}}{\text{Actual Hours.}}$$

Name	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	Remarks

FIGURE 8

At the Real Silk Hosiery Mills, a staff of specialists reporting directly to the President and General Manager, are responsible for all manufacturing costs. Their work includes cost researches, improvements in manufacturing and processing methods, standardization, time studies, wage incentive plans and all such activities which contribute to a reduction in manufacturing costs. Naturally, the task of controlling individual performance records is assigned to these specialists, in cooperation with the factory executives.

In organizing for this work, the purpose must be to develop the inherent resources and capabilities of man-power beyond the average or normal degree of productivity. To accomplish this purpose, physical and mental loss of effort must be removed; workers must be selected and trained to fit the job; specialization, standardization and positive control over all processes and operations must be secured and special rewards for superior accomplishment must be provided to stimulate man-power to the greatest degree of exertion consistent with health and happiness. The magnitude of the latent power which can be released in millions of workers cannot be estimated. It is the task of management to attempt this release by centering the attention upon the human element, the individual person. As President Herbert Hoover has said: "If we are to secure increased production and an increased standard of living, we must awaken interest in creation in craftsmanship and contribution of this intelligence to management. We must surround employment with assurance of just division of production. We must enlist the interest and confidence of the employees in the business and in business processes. We have devoted ourselves for many years to the intense improvement of the machinery and the processes of production. We have neglected the broader human development and satisfaction of the life of the employee that leads to greater ability, creative interest and cooperation in industry. It is in stimulation of these values that we can lift our industry to its high state of productivity, that can place the human factor upon the high plane of perfection reached by our mechanical processes".

CHAIRMAN CROCKETT: Let's get to the discussion.

T. B. DUNN (*Auditor, Kansas City Structural Steel Company, Kansas City, Missouri*): I would like to ask if you can

INDIVIDUAL EFFICIENCY AND QUALITY RECORDS.

Foreman: L. M. Snyder Department # 6 Quarter 1929

Name		w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e	w/e
	P													
	Q													
	P													
	Q													
	P													
	Q													
	P													
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	P													
	Q													
	P													
	Q													

P Production Efficiency in %
Q Quality Efficiency in %

FIGURE 9

give me the cost per hundred men of such a department for keeping those records?

MR. BAUM: We have on our pay-roll from three thousand to thirty-five hundred workers. The department that handles the control of labor records consists of five persons and a stenographer.

MR. DUNN: I would like to ask another question. Is that budget based on your past experience? Do you apply the budget to special jobs that go through your shop? Also how often do you change the budget, say, every week, every month, or by the year?

MR. BAUM: The time units per year are based on time study. The standard material quantities are based on past experience. The standards, to be at all effective, must be changed as often as is necessary to meet the changes in the organization, in styles and in processes.

If we had time we might discuss in greater detail how the budget is prepared, but it is sufficient to say for this purpose that the budget is based on past experience and an estimate of future possibilities.

JOHN BALCH (*Balch, Funk and Company, Philadelphia, Pennsylvania*): Did I understand you to say that you keep this efficiency record on all employees or just those on productive work?

MR. BAUM: On all direct producers, such as Knitters, Loopers, Seamers and Borderers.

I. H. FREEMAN (*Wage Rate and Employment Supervisor, General Electric Company, Fort Wayne, Indiana*): In making out your material budget, do you include a normal waste allowance? Do you consider that you cannot make hosiery without some waste?

MR. BAUM: That is, of course, the case. You cannot obtain a standard of quality or of man-hours without including a reasonable amount of waste.

H. B. SPEYER (*Auditor, Champion Spark Plug Company, Toledo, Ohio*): In putting this record in man-hours, would it not

be better to use a cheaper grade of help and get less production from a cost standpoint than using a high grade of help with greater production?

MR. BAUM: My personal experiences over a number of years have indicated that high wage rates are not inconsistent with low labor cost.

E. H. WILDT, (*Assistant Treasurer of the Motor Wheel Corporation, Lansing, Michigan*): How do you take into consideration the variation in work-in-process between the beginning and end of the efficiency period? Do you include supervision man-hours in your indirect hours in checking efficiency?

MR. BAUM: The efficiency period is the week. In the indirect labor budget is included all help which does not contribute directly to the production or which cannot be allocated directly to a particular product. Therefore, clerks are included in the indirect labor cost.

MR. WILDT: How do you take into consideration the variation of work-in-process between the beginning and the end of an efficiency period?

MR. BAUM: In our business the operations are very short. The longest operation will not take more than one hour. Therefore, on Saturday noon each operation is completed.

MR. JORDAN: I think I can see the dynamite in this. The thing is to answer how others can do it. I think he is talking from the standpoint of plants that have long continuous jobs where there is a continued process. You are referring to a long job, are you not?

MR. WILDT: It would be typical.

MR. JORDAN: I think the answer to that question is just here, that in this labor efficiency record, if it is a job like in a machine shop or boring mill or planer, where the job takes two or three or four or five days, maybe a week or two weeks, that the job from the standpoint of finding the efficiency as against

the estimated time or standard time allowed for it is taken into consideration on completion.

Mr. Baum is talking of a comparison of what things ought to cost and what they do cost. This is not a work-in-process inventory. It is a comparison of completion of all jobs of actual cost as against standard cost, so the work-in-process inventory doesn't enter into this matter of record.

MR. WILDT: Maybe I misunderstand. I thought that was to be an efficiency report on completed units.

MR. JORDAN: Yes, it is on completed units.

MR. WILDT: It can't be—let me cite this. Take a large hub shop, where you have possibly two hundred machines, and you start so many jobs of hubs through that department, and the week is over, and through hold-ups and other reasons you have a large amount of units unfinished, you might have a large variation.

MR. JORDAN: Do you mean the hubs themselves are not entirely finished?

MR. WILDT: Yes.

MR. JORDAN: He makes no attempt to do that. He goes by completed *operations.*

MR. WILDT: Where does he get complete hours for the week?

MR. JORDAN: It is showing the comparison against hours which are completed against the number of hours they should have taken. It is getting away from orthodox accounting. It is getting down to actual comparisons of completed work with the basis on which they should do it. It is simply a gauge on the efficiency of the work which is actually completed, operation by operation, irrespective of the work-in-process. It is not an accounting record at all. It is a control record to show how efficiently the control is operated.

MR. WILDT: It says unit and man-hours. This doesn't tie up with the total man-hours.

MR. JORDAN: It is only that which is completed. That is getting down to brass tacks, because if you control production in that way you needn't worry about your work-in-process turning out right, or making money.

ROY H. COHN (*Planning Department, The Norton Company, Worcester, Massachusetts*): Should clerical labor be eliminated from foremen's duties? Should clerical labor be removed from production departments and centralized in a factory office? Should clerical labor be performed in the manufacturing department by a clerk under the supervision of the general office?

MR. BAUM: That is a very general question. I should say it would be advantageous to give the superintendent sufficient clerical help so that necessary work can be performed in the shortest possible time and at the lowest possible cost.

JOHN J. LANG (*C. P. A. St. Louis, Missouri*): In connection with the preparation of "gain or loss per unit" is any recognition given to accounting for the variation between "budget" and "actual" production, say budget production being 1,000 units; actual production, 800?

MR. BAUM: As Mr. Jordan has already brought out, very much to my satisfaction, there is no connection whatever between these records and the accounting records. These are purely efficiency records and are not entered on any of the books.

CHAIRMAN CROCKETT: There are two other questions but I am going to exercise my perogative and say that they will be taken up in a later session, not so much because the time is so short but primarily because I am certain that these questions will be better answered to-morrow afternoon.

The next speaker is going to deal with manufacturing records more generally and will tell you at least what he is doing and what ought to be done in building up necessary records for the control and operation of a factory. I will introduce at this time

Mr. Thomas R. Jones of the Harris-Seybold-Potter Company, Cleveland, Ohio.

RECORDS IN MANUFACTURING INSTITUTIONS

THOMAS R. JONES

Vice-President & General Manager

Harris-Seybold-Potter Company, Cleveland, Ohio

THIS paper takes its cue from a letter sent me by Mr. Crockett and treats only of those records necessary for the manufacturing operations of the manufacturing plant. If this paper is to stay within the half hour limit set upon it, it cannot treat of all of the records which might possibly be used in a manufacturing plant, nor can it adequately treat of even those records which are absolutely necessary. Consequently, I have attempted to discuss the fundamentals underlying manufacturing records, the basic qualities necessary to their proper make-up, and to touch upon those high spots which seem to me to require special attention. The entire treatment of the paper is that of practical application, and the discussion is from the standpoint of the man using records rather than that of the one making them.

Manufacturing records, from the standpoint of use, divide themselves into three divisions: First, facilitative; second, informative; and third, historical. Of these three classifications, that of the facilitative is the most important.

Facilitative records are those records which facilitate the various activities of the manufacturing plant, and assist in their control. The facilitative records are intimately involved in the routine of all operations. Their involvement is so intimate that they really constitute a part of operations. On the facilitative operations depend the fineness of control and the smoothness of interdepartmental operations. The failure of what should be facilitative records to embrace some of the fundamental requirements, which I shall later discuss, may mean expensive operation as against economical operation.

Let me digress here to discuss briefly what I consider to be the true function of the records department. The major functions

of records are those of facilitation. They furnish for the men in charge of operations the basic facts which will enable them intelligently to direct their jobs. It therefore follows that the basic functions of the records collecting department are likewise facilitative, and that the wise controller, and the wise accountant or statistician, subordinates the work of records collection and compilation to the sales, financial, and manufacturing objectives of the business to the end that the various executives in those divisions may have the actual tools necessary to the maximum intelligence in the performance of their functions.

The informative record is a compilation of the records of performance or accomplishment over the immediate past. These records show what has been done rather than what is being done or than forming a part of what is being done, as in the case of the facilitative records. The facilitative records should be in the hands of the line executive in immediate charge of operation; the informative records are for the manager and general supervisor. The informative record is used as a basis for planning future policies and programs and as a check on performance as compared with policies and programs at present in operation. The requirements of the informative program, other than the requirement of accuracy, are not as exacting as in the case of the facilitative record.

The historical record is compiled for the purpose of obtaining a picture of operations over a period of time, and its main requirement is that of accuracy.

Because of the supreme importance of the facilitative record in any manufacturing organization, I wish next to outline the characteristics which are necessary in the efficient facilitative record. Of course, all of these characteristics will be necessary in any type of record, whether it be facilitative, informative, or historical. However, their importance in the latter two cases, is of lesser degree.

A man visited me in my office not long ago and brought with him a set of statements which his company uses supposedly to control its own operation. There were ten or twelve very closely printed and typewritten sheets, each sheet the size of standard thirteen column statement paper. The products manufactured by this company are relatively few and relatively simple, yet it required ten or twelve of these large sheets closely printed and

typewritten to contain all of one month's statistical information collected for the purpose of control of operations. I studied these sheets for an hour, and at the end of the hour had but an indefinite idea of what was going on. Barring the thought that I might be lacking in statistical intelligence, we must then say that these records lacked one of the elements of properly designed records, and that is the element of simplicity. The more simple a record is the more easily understood and more quickly and readily will it be used by an operating executive for the control of his operations.

I asked this man, "When are these records completed?" He told me that about ten days after the close of each month the operating executive had these records at his disposal. Now, at the end of any one month some of the records of that month are already thirty days late, some twenty-nine days late, some twenty-eight days late, and so on. The average is fifteen days. Add to these fifteen days the ten days necessary for compilation of the records and we have a plant executive getting and trying to act on records which are twenty-five days late when he gets them. So here was another element which these records lacked—that is, the element of immediacy. What constitutes a delivery of records within the meaning of this word "immediacy"? Operating records to be ideal should be available instantly as the operation recorded is performed.

As an example of immediacy of records, let me cite the practice of an automobile company which is using the tele-autograph system, or a system which transmits electrically the handwriting or typewriting of the sender to one or more distant points, so that a record as made may be transmitted immediately and simultaneously to all affected departments. Also, methods are available whereby the foreman in charge of a group of men knows instantly when anything is happening out of the ordinary and has a complete report, by nine or nine-thirty the following morning, of the performance of every man in his department.

To refer again to the records of which I have been talking, there was still another characteristic which they lacked. They were compiled largely on a price per pound basis and it was impossible to determine from the records just where waste had occurred. Furthermore, the records went to the manager and the manager alone, so I would say that these records lacked the element of

utility. For a record to have utility, it first must be compiled in terms of readily usable units, must be broken down into classifications which are easily controlled and readily grasped and recognized, and must be in the hands of a man who can use it.

If the accountant sets up a record and uses a terminology which is not familiar to the man who should use the records, it is evident that the records are nearly valueless from the start. If in addition to this the classification of expense elements is in accordance with some theory not used in practice in the business for which the record is collected, or if a manager is given an overall price per pound when he is operating on a departmentalized basis, he has no means of determining where his operations went wrong, and the record tends to daze rather than to enlighten him.

Facilitative records must be where needed as well as there when needed. Who needs records? It is, of course, the man in control of activities. Is this the manager? No, the manager only thinks he is in control. The person who is really in control is the foreman or supervisor who is in actual charge of the men doing the work. It is the action of the foreman which determines whether the business will make a manufacturing profit or manufacturing loss. It is the action of the foreman which determines the efficiency of the business. Consequently the foreman should have his knowledge as the operation is in process and he should have that knowledge immediately—not the next morning. On the following morning he should have a summary of what his department did yesterday. The superintendent in his turn should get a weekly record of what each foreman is doing and base his policy toward that foreman on these records.

So well is the element of accuracy drilled into the mind of the average statistician or accountant that its mention as a fourth element is almost unnecessary.

I wonder whether I am wrong in the assertion that most accountants tend to compile groups of accounting statistics about a condition, rather than to present a well balanced and complete picture of what is happening in connection with that condition. Whether I am right or wrong, I can say that an accountant or statistician performing his true function does not present to the manager merely the various groups of related figures, but includes in his statement all pertinent facts necessary to the control or

intelligent study of the conditions analyzed and groups them in such a way that a true and unprejudiced view will be presented. In other words, records must have the fifth element of adequacy.

The sixth element necessary to adequate records is that of comparison. The records of any foreman showing only that foreman's performance are entirely inadequate. They must show a comparison with either something which has gone before or with a scientifically determined standard.

Standards form the life blood of all records. Records, especially operating records, are valueless in themselves. In any record you merely have a picture of what has occurred without any means of telling whether that occurrence is good or whether it is bad, whether it is excellent or whether it is mediocre. However, when the same data are compared with standards they are given life and the user is enabled to tell what is good performance, what is bad, and where to make corrections. The standards themselves must be scientifically and accurately set within the limits of practicality. Hastily and thoughtlessly determined standards are of no more value than a guess. Where standards are not available, past performance may be used for comparison, but past performance merely shows a comparison with what has been and therefore may tend to perpetuate bad practice, while standards show a comparison with what should be and cause performance to tend to approach the ideal.

It has been my experience that the tendency of all record keeping organizations is to keep records in too great detail and in too great volume. While, of course, it is impossible to make a statement as to the utility value of the average set of records, it is nevertheless a good guess to say that probably fifty per-cent of the information collected by record departments is of no value and could be thrown out without in any way hampering the operation of the business. Another tendency, or possibly a sub-heading of the above tendency, is that of records being kept for the purpose of keeping records, rather than keeping records for the purpose of facilitation of operations.

Now, let us consider what records are advisable to keep, and let me state right here that it is advisable in all cases to keep as few records as possible. In other words records should be as few as is consistent with an essential knowledge of the operation in the hands of the person using the records. All records and

record systems should be periodically scrutinized and all details not used thrown out.

Records which may be recommended by any person are not a reflection of some universal standard of requirement, but are a reflection of the proponent's philosophy of management. I mean by this that there is no group of records desirable for every manufacturing business, despite the practices of some of our advisers. Especially is this true in the case of facilitative records. Facilitative records are the outgrowth of methods and these records, therefore, are dependent upon the methods.

Financial

In every manufacturing business there are certain financial records which uniformly should be at hand. Among these the balance sheet and income statement are foremost. They should be available to the executives monthly and within ten days after the close of the month. There should be also a daily statement of current assets and liabilities which should be in the hands of the executive not later than nine o'clock of the day following that on which they are made up. Also, the executive should have a daily statement of commitments showing the purchases made each day, invoices received, and the commitments at the end of the day.

Another extremely useful financial record is that of the budget. The budget proper is a standard. It is a standard of operating expenditures under certain conditions assumed for a given period in the future. The budget has two purposes; first to forecast the financial policies of the company from an estimate of receipts and expenditures, and, second, to enforce a standard by which the operation of the business may be compared, and through the comparison, controlled. Budgets, then, should have a planning or informative and an operating or facilitative function. The budget is a classification of expense items with the forecast amounts of the various expenditures set off against the classifications. Periodically there should be made up a statement of expenditures to coordinate with the classification used in the budget, and the comparison of these expenditures with the budget gives the necessary control. The budget, of course, goes to the major executives, but to get the full value of the budget it must go to the supervisor in charge of the workers. For the purpose of emphasis let me re-

peat this. If you have a budget and it is not put in the hands of the foreman or other supervisor for the purpose of control within his department, then you are not getting the full value from your budget. To be of value, the budget must also be alive. It must be kept in step with changing conditions and, if necessary, be revised monthly. There are many companies which do this, and with them the custom is to revise monthly and estimate for a period of three months in advance.

The budget also must be flexible. It is impossible to estimate accurately in a given department the number of productive hours which will be put in within that department in the succeeding thirty days. Consequently, it is equally impossible to set accurately the total amount of expenditures. Some expenses are fixed, of course, and they can be set at a fixed rate. However, the variable expenses must be based on a rate per productive hour and thus enable the budget to change with the variations in the departments. Unless this is done you will be confronted constantly with the case of men making their budgets through no efforts or faults of theirs, or losing their budgets despite the drastic effort they may employ to come within it.

Costs

I know a company which has a very elaborate and highly detailed system of costs and cost keeping. It records in complete detail the cost of each part each time it goes through the shop. That is, a lot of a certain piece may go through this month and another lot of the same piece go through the next month and again the month following, and this company knows each time the cost of material, labor and burden in that piece. Manufacture is cn a lot basis. A lot of one hundred pieces may start in the shop and the cost per finished piece is equal to the total amount of material, labor and burden put in on that lot, divided by the number of finished pieces. There are about twenty thousand active parts, and there is a record of the cost on each one of these parts over a period of years. From a parts list the cost of the individual parts are added and thus is obtained the cost of a finished machine. This cost system is a model of its kind and men come from all over the United States to study it. They marvel at the completeness of detail and then go away feeling that they have seen something of exceptional value in cost keeping. How-

ever, once in about each hundred visitors there comes a man of exceptional perception and he is apt to ask the question, "What do you do with these costs?" In an instant the whole system is stripped of its glamour and there stands the cost system in all its insufficiency. The answer to the question is that every once in awhile they take out some cards and look at them. The cost system is, of course, of some value for the pricing of goods. The costs are apt to fluctuate violently for reasons which I shall point out, but if the prices are set high enough, these fluctuations can be covered.

Also, these costs are somewhat interesting, but aside from that they have little value. Three things are wrong with them. First, there are too many of them. I defy any man, no matter how keen a mind he has for detail, to take fifteen thousand cost cards and control his operations. Second, they are too late. It takes in some cases two and even three months for some of the more intricate parts to pass through this shop. Add to these two or three months the time necessary to compile the costs and you will see that by the time the cost records are obtained it is entirely too late to do anything about the control of the elements which make the cost too high.

Third, the cost system confuses basic costs and managerial mistakes and inefficiency. For example, if a part is spoiled out of a lot, the time that was put in on that spoiled part is charged to the lot. This, of course, sounds foolish to some of you, because you will say that the time and material put in on a spoiled part is not part of the cost of the parts completed, but most of you who will make this contention will include as part of the cost the fifteen or twenty minutes a workman may spend awaiting his foreman when he runs up against a problem which he cannot solve for himself. Yet there is no essential difference. They are both wastes and they are not part of the cost of the completed job. Waiting for foremen; waiting for tools; repairing broken belts which should be in the scrap heap; and other time wastes of this nature are usually included as costs of a piece, when they should be excluded and made to stand out by themselves as inefficiencies of management. It is not uncommon to find, upon analysis, that twenty-five per-cent of a workman's time will be put in on valueless work of this kind.

As far as proper cost records are concerned, the answer is

that costs as a means of control have outlived their usefulness. Cost records are too slow for modern methods and control must be gained through more modern means.

Of course, costs are needed for intelligent pricing. But for this standard costs are the best. The standard cost of any piece is made up of a standard amount of material at a standard price plus a standard amount of time put in on a piece multiplied by the summation of the respective standard times at each machine multiplied by the respective standard labor rates and standard burden rates for each machine. These standard costs take different forms, depending upon the type of manufacture.

In a jobbing manufacturing establishment in which any given design is made at rare intervals or only once, the standard cost is figured from the time set on the work as it enters the shop. A standard cost may thus be had shortly after the design is finished and long before the completed job is finished.

In a manufacturing plant in which the same product is made over and over the matter of cost is relatively simple. The summation of the cost element over any given period divided by the total number of units figured is the cost per unit. Likewise, a normal standard cost can be figured by basing all figures on estimates of normal production.

Standard costs for discontinuous manufacture, as in the case of a company making a standard product in lots, are formed by compiling the standard costs of the individual pieces and then with the aid of a parts list compiling the costs of the completed articles.

There is only one time to control costs and that is while they are happening. This can only be obtained by the intensive direction of the operations of the individual workman and only through the assistance of records and information which is immediate to the last practicable degree.

Please do not misunderstand me. I believe in accurately determined costs of material, labor, and burden, and I believe in a departmentalization of labor and burden determination. Such figures are necessary to an intelligent setting of selling prices. However, I believe in these figures only on the basis of intelligently determined normal operation, and most emphatically do not believe in the continuous and laborious accumulation of misnamed actual costs which, after they are collected, are nearly valueless.

Labor

Labor records take two forms; the first that of the actual history of the employee, and the second that of his performance. The historical record commences with his employment and consists of a record of his personal status and past experience, together with such recommendations as he may have given and such information as may have been determined regarding him. To this is added periodically the more detailed history of his employment in the given company; his changes in rates; his efficiency records; his attitude; and his promptness, and probably combined with this a record of the appraisal which his foreman makes of him from time to time.

The performance records must start with standards. These standards by which a man is to be judged must be set accurately and fairly. They must be outlined in exact detail so he will know exactly what is to be expected of him.

It is the usual practice in manufacturing concerns to set standards on the direct labor and fail to include indirect labor because it is difficult or because it has not been thought of. The result is that we often find companies which think they are highly efficient and which have good control over direct labor, but they overlook the fact that they may have for every direct laborer an indirect employee over whom they have no control whatsoever insofar as standards are concerned. Supervision is likewise an element which should be controlled through standards.

The old method of setting a standard and adding from 20% to 50% to that standard to allow for necessary waste, "waits", and other factors which enter into production and which are beyond the control of the workman, is a thing of the past in modern management. The modern method is to set a net standard, to record the wastes, isolate them and eliminate them as much as possible. These modern demands put a stress upon records which never before have been put on them, and the records must be designed with sufficient strength to withstand this stress. These records must be accurate and immediate to the last degree. It is not sufficient to have records of performance at the end of the week or even the next day. It is necessary to have an immediate check on what is happening as it happens.

It must be remembered in this connection that control of costs

and control of performance is not in the hands of the management. It is not even in the hands of the superintendent. All that the manager and the superintendent can do is to make it possible for the men under them to control the operations which they are actually performing. These men who actually do the controlling; who actually determine whether the firm makes a profit or a loss, are the foremen, or possibly even the workmen. Consequently records must be obtained at the source as they are happening and used immediately at that point. This is vital to the last word in efficient management.

A daily summary of the previous day's performance should be in the hands of each foreman by nine o'clock of the succeeding day. It is not necessary that the superintendent or the manager know of this performance daily. I might remark here about the managers who tell you that they know each day exactly what has been done in detail the day before. Upon delving into the situation probably you will find that while the manager knows these things, the man who is doing the actual work does not know them. The situation should be reversed. It is sufficient for the superintendent and the manager to have a weekly summary of what has been done by departments, for thereby they can determine whether the supervisors are doing their work as it should be done.

For purposes of control, the management should have certain additional information. There should be an estimate by departments of the productive hours to turn out the schedule, and a running comparison should be made of these productive hours. The same applies to non-productive hours. A record should be made of the distribution of the hours put in by types of products or types of services performed, and it is desirable to know the time and a half and the double time overtime which is worked.

From the standpoint of labor control there should be an accurate record of absenteeism, lateness, and labor turnover.

Stock and Inventory Control Records

By "Inventory Control" I mean the minimizing of inventory. Inventory control is not primarily a matter of records. True control of inventory comes through the proper planning of processes and through adequate control of operations and only as records are an aid to processing are they a factor in the control of inventory. If all processing and material movements are planned

with a maximum of efficiency and economy, the inventory will take care of itself. Minimum inventories are obtained through a state of mind and only secondarily through records.

The fundamental necessities to adequate inventory control are first, proper forecasting of requirements. In other words, the proper forecasting of probable sales. Second, an intelligently planned production schedule developed from the forecasting, third, intelligent authorizations for processing developed from the schedules, fourth, proper purchasing and fifth, proper processing.

There are four divisions of inventory: Raw Material; Process; Finished Parts; and Finished Stock. We, of course, must have stock records of raw material showing the amounts on hand of each item, and receipts and disbursements. Possibly the raw material record can be combined with the purchasing records to show the amounts on order. This combination is especially advisable where a material section is responsible for purchasing as well as the actual installing of materials, but at the best raw material records have decided limitations and all that can be accomplished with them is the minimizing of misplaced material; the warning of the purchasing department when a stock of any given materials is getting below the danger line, and a preventive which will keep the raw material stocks from getting completely out of hand. But, true control of raw material inventories depends, first, on the standardization of materials, material sizes and material shapes. In the term standardization is included, of course, the elimination of all unnecessary analyses, sizes and shapes. Only through the carrying of such a standardization as the ultimate and the ever-watchful eye of an efficient design standardization department, can raw material stock be held to a minimum. Coupled with this standardization is needed an intelligent purchasing program with incoming purchases held to a predetermined schedule of arrival.

Process inventory cannot be brought to an ultimate minimum through any system of records no matter how complete. The control of process inventory is to be had only through proper production methods. As an example of this, I have in mind a company manufacturing cream separators, which, with specially devised racks on wheels and through the installation of conveyors, cut their process inventory in certain departments, if I remember correctly, something like two-thirds. Material handling methods, equipment for speedy and economical production, simplification of processing

under combinations of operations all have their places in the minimizing of process inventory.

The minimizing of parts inventory must come, first, through properly coordinated processing; second, through standardization and interchangeability of parts; and third, through, under certain circumstances, proper stock records. As an example of standardization through elimination, I have in mind a company which was manufacturing for its product twenty-seven varieties of a certain kind of wheel. After a standardization program had been put into effect the same purposes were served by three varieties of wheels. As an example of proper scheduling we can cite again the automobile company which uses a tele-autograph to control its production, thus gaining an immediacy of information which can cut an otherwise necessary process inventory to almost nothing.

As for stock records, I know a company which very efficiently conducted a good-sized manufacturing business without any stock records or without any stock room. Any given part which enters into this company's production is ordered at regular intervals. When it is time to order a part an inventory is taken of the quantity of that part on hand and a sufficient quantity is ordered to last through to the next ordering time. A follow-up is kept on the piece in process and when it arrives for stock the follow-up is destroyed, the part is forwarded immediately to the assembly line and it is forgotten until the calendar shows that it is again time to order that part.

While we are on the subject of stock records we can all reminisce to the extent of recalling the perpetual inventory which combines inventory and cost records. Under this system the cost records must balance out exactly. If fifty units of a part were purchased at 23c each and later one hundred at 25c, to make your figures come out correctly you had to carefully use up the first fifty at 23c each before you started on the next 100 at 25c each. It is rare indeed that this type of costing is to be found, and when found it is usually in a purely jobbing institution.

Finished stock is controlled through proper forecasting, as mentioned before. Another factor which will tend to decrease finished stock is that of low processing time. If it requires two months to process a given product it will require, of course, more of this product in stock to take care of immediate orders than if only two weeks were required.

The only true records of inventory are the financial records, and they should be divided into the raw material, process, parts and finished stock classifications, and possibly each of these classified by a division of product. Each of these should also again be divided by labor, burden and material.

Production Records

The factors fundamental to proper production records are proper planning; an intelligent production program, and last but not least, proper standards. The term standards comprehends and connotes a high degree of interchangeability of parts, no matter how varied the product; standards of process, speeds, feeds, motion, and so forth and standards of performance.

The main difficulty with production records is to make them adequate without red tape and an army of clerks to take care of them. If I were to have the job of reorganizing a plant and find in it a very complicated system of records, I would forget the records and go into the plant and try first to simplify that. The records should then simplify themselves automatically. If they did not, there then might be found a controller or statistician who would need simplifying.

Now, in reviewing what I have said, I don't want you to misunderstand me. I believe in records. I have them myself in large quantities—but not too large. Records are very important managerial tools. Their degree of importance, however, is determined, not by the people who use them, but by the understanding and spirit of the person who makes them. If you who make records have the fundamental idea of what those records should perform, if you have the fundamental idea of how they should appeal to the man who is going to use them, and you can strike his psychology with those records, then you have done something, and you have a record that is valuable.

Summary

A records department in a manufacturing plant can be made invaluable or it can be made a nuisance.

Four factors are fundamental to valuable manufacturing records. First, the idea of facilitation;—the idea that the records

department is not an end but a means to an end; that the accomplishment of the end is in the hands of the operating executive and that the true function of the records department is to facilitate,—to be of service not alone to the manager but to the humblest foreman of the humblest labor gang.

Second, the factor of immediacy;—the idea that the ideal record is available at the instant of the happening of the event being recorded. An automobile speedometer which gave you a record of your speed a week late wouldn't tell you when you were in danger of being pinched.

Third, the factor of standards;—the scientifically determined, practicable ideal of accomplishment by which progress may be judged. I always like to think of a standard as something just ahead by which we can pull ourselves forward. Never immune from study and change,—once attained and maintained it is to be examined for possibilities of further advancement. It is well to remember that a wrongly set standard can be an anchor astern and as such prevent progress instead of aiding it as when placed ahead.

Fourth, the factor of simplicity;—the bringing of records to a form and terminology within the grasp and the quick comprehension of the user.

E. W. WESP (*The Crosby Company, Buffalo, N. Y.*): A detailed cost system covers a record which is very useful at all times. Some of us may consider detailed records ancient history. I consider standards, immediately after they are made, ancient history. A standard today is what tomorrow? We know not. A new discovery brings changes. We are working under a new process today, decidedly more speedy, more efficient than ever. What is the answer? Through records that have been kept and taken by the estimating department and the engineers and thoroughly studied and analyzed—what has been brought about? It has brought about improvements in machinery which has speeded up production.

Take the article of spoiled work. A good many of us have spoiled work. We consider our labor on spoiled work naturally as a part of cost, depending entirely upon the part of spoilage. Your material deduction regarding your cost will depend entirely upon the intrinsic value of the material. If it is of small value, you are

not going to spend more time figuring its cost than what it will cost to absorb it. If it is material, such as bronze, take out the salvage value of that material. The difference is a rightful cost of the job going through that plant providing your spoilage has not been due to carelessness.

With reference to the matter of workmen waiting for foremen, waiting on belts, etc., I would say in the proper set up of a budget all these elements can be taken in and absorbed in overhead.

In the case of a jobbing business, what are standards and where would you be without a detailed cost of every job? My experience in the jobbing business has been one of quite a wide and varied nature and I have found it very essential both for the managerial department and the estimating department to know what their activities have been after the job has been completed as well as while the job is in process.

One method which we have of controlling excessiveness against a job process is immediate reporting to the foreman the following morning what inefficiency he has had in his department and not burdening him with unnecessary details about the goodness of what has happened. We do not admonish a child for any good things he has done, neither do we praise him, but woe behold when he has done something wrong knowingly.

The estimating department in a good many instances reviews the costs when making new estimates for future business. I am speaking strictly of a jobbing plant. Quite frequently such a plant is called upon to estimate upon something which it has never made before but still it is something similar to something which it has already made. Without a detailed cost record where would the engineering department be? We consider the engineering department in a manufacturing institution, the Utopia of the plant. It is not the Utopia of the plant any more so than the workman down at the machine or the foreman. We have not reached the stage of Utopia as yet, but with the check of the previous cost, the assistance of the superintendent, the foreman, and the workman, the estimating department and the engineering department receive considerable help.

They get the group together that is affected by it and they say, "What has been done here? What has happened there? What should we have done?", and oftentimes the engineering department and the estimating department are given leads which have

been helpful to them, and when jobs come through again, or jobs of similar nature, the cost on them is reduced materially.

MR. JONES: Mr. Wesp has taken up the example of the job plant, and asserts that only an actual cost system can be used in such a plant. He also asserts that standards are ancient history and that they become so the day after they are made.

Before commenting on these statements please let me bring to your attention again the fact that in any organization the records needed depend entirely upon the form of the organization and the methods used, and it is impossible for you or me to say what should be done in all cases.

Suppose that we have, in a jobbing plant, a system of cost finding which collects the usual standard costs—in other words collects the cost information after the event which gave rise to the cost has occurred. We know from the cost figures thus derived what the cost of any job which has gone through the plant has been, and from an analysis of these figures we may know whether the cost was in labor, material or burden.

If labor costs were either high or low we do not know it, as we have no standard with which to compare the costs. Furthermore, we do not know when, why or how these labor costs went wrong, and even if we did know our information is so late and so stale that control of that particular job is an impossibility; therefore, it is my contention that records are nearly valueless unless they lead to control.

When Mr. Wesp says that standards are ancient history the day after they are made he makes me wonder whether he understands what a standard is. Suppose that we set a certain standard for the performance of a man—is there any factor which enters to make that standard ancient history the day or year after it is set, if there is no change in the material or design on which he is working, or in the methods and equipments with which he is working? As I stand here I have in mind a department in the Company for which I am now working, in which department it is rare to find two jobs alike. Ninety-four out of one hundred labor hours are on standard. Control is obtained while the work is being done, and not a week or a month, or a year later.

I tell you, men, there is a new pace in manufacturing. If you

men are going to keep step with that pace you have to get away from giving the manufacturing executives information that is so old they can't use it to control the thing on which it is compiled. I am talking from the standpoint of the man who uses the information.

Mr. Wesp spoke of controlling lost time of waiting for tools, waiting for foremen, and waiting for jobs and similar losses through the budget. I fail to see how such losses can really be controlled through a budget, when the wastes which make up such losses are not shown up until ten or fifteen days after the end of the month in which these wastes occur. Furthermore, they are shown up only in the gross, and it is impossible for the foremen to tell just which man, machine, or incident caused the losses. The time to catch and control such wastes is at the exact moment in which these wastes are occurring. This is not a visionary thing. It can and is being done every day in the most up-to-date plants.

HOWARD C. ZOOK: What officer or combination of officers in an organization should decide what and how many records should be kept?

MR. JONES: I don't know. If you will tell me in detail what your organization is, what you do, and tell me the psychology of your various men, then I will lay out an organization plan and tell you what records you need.

G. A. MOE: When the foreman is furnished with the records you speak of, when the operation is being done, what records should the cost accountant prepare for the manager?

MR. JONES: Reverting to the thread of thought that should pass through the entire session, I would say that the information which the manager needs is a matter for special study of the particular organization in question. To answer the question generally, the manager needs a summary of information which the foreman has. How far this summary should go depends upon the manager and the particular conditions.

The summary certainly should show—1st—the departmental efficiencies of both direct and indirect labor. 2nd—The perform-

ance of each department in regard to expenses. In other words, he should know what they should have spent, in comparison with the budget.

L. D. CRUSOE (*Supervisor of Cost Accounting, Fisher Body Corporation, Detroit, Michigan*): In listening to the discussions in this convention, the average person is liable to get the idea that unless a record is published the minute an expenditure is made it is not useful. I contend that these so-called historical records are valuable, and that in the main all our decisive steps are based on historical records and nothing else. It is patent that you can judge the future only by the past. We are entertaining men at these conventions, and in all our chapter meetings, who are growing up in this business. They are getting the idea that there is some brand new formula for determining costs and that it can be done only by discarding the present records. I don't think we should lose sight of the value of these so-called historical records.

MR. JONES: I thoroughly agree with everything Mr. Crusoe said.

H. S. MINSTER (*Assistant Plant Manager, York Heating and Ventilating Corporation, Bridgeport, Pennsylvania*): A statement was made that the actual costs were gone over to determine what should have been done, and yet the gentleman who made that statement was not in favor of standards. How can you make a comparison if you don't have something to compare? I am wondering if those people who destroy records are not averse to using standards. They must have something to compare with and that thing is a standard in their minds.

MR. JONES: I think there is a difference between a historical record and a standard. A historical record is nothing more nor less than a record of what has happened. A standard is something that has been worked out from a scientific research. In such a research past records are taken into consideration. But, in addition, the factors that are apt to prevail in the future and which have not prevailed in the past are also taken into consideration, and the standard set accordingly.

J. J. NOLL (*W. Bentley Company, Inc., Niagara Falls, New York*): How do you coordinate the many minor reports into a general report for the use of the management in exercising financial control? For instance, on the point of controlling inventories, what report should be made to the general office so a current record of the various inventories can be built up in order that the management can determine whether too much money is not tied up in inventories? This refers especially to materials used in excess of standards.

CHAIRMAN CROCKETT: I'm not going to try to answer the question. It seems to me that is a question of detail, with which this particular discussion is not connected. By trying to get over to you the ideals of simple facts you need to know, we are not trying to tell you whether you need a particular record in this, that, or the other way. Analyze it—"what are the essential facts necessary to control this business?"—and design your records to fit in with that analysis.

MR. JONES: Mr. Crockett has answered that question to my satisfaction. I can't tell you what records you should have. I'm trying to give you some fundamentals as to how they should be designed.

W. F. WOODBURY (*Controller, The Wahl Company, Chicago, Illinois*): Does he mean in checking the labor standards he has a more wide-awake foreman in checking on the spot, plus daily information?

MR. JONES: I think we have to have a wide-awake foreman because the supervision is all important. In addition to that, there is a checker. It is his duty to watch the waste and call the foreman's attention to it.

I don't know that I can go any further on that point. I have said what I have to say on that. Ten years from now you will all agree with me.

A. O. HARDING (*Cost Accountant, The Hoosier Manufacturing Company, Newcastle, Indiana*): Mr. Jones stated that he used the standard costs, as I understand him, in the financial

statement. Does he wait until the end of the year and find that he has lost $50,000 due to economic conditions, that sales have not been what they should be, and so on?

MR. JONES: We have a daily statement of operating conditions, and a monthly statement of profit and loss.

MR. HARDING: In other words you put your actual cost in your profit and loss statement—not your standard, but your actual?

MR. JONES: Yes. We take expenditures for material, labor and burden and throw them all in there.

CHAIRMAN CROCKETT: Don't think for a minute that Mr. Jones doesn't know every day the actual conditions in his plant. Don't fool yourself that he lets anything go to the end of the year to find it out.

E. P. BARTLETT (*Accountant, The Ohio Electric and Controller Company, Cleveland, Ohio*): With a business producing to order only, using a job cost system, with fifty per cent standard repeat parts and fifty per cent special parts, how would you sort standard jobs to avoid repeat recordings and at the same time have last costs available?

Mr. Jones said that the sum total parts produced divided by the number of units produced equaled the number of parts per unit, but that wouldn't answer the other question.

MR. JONES: I also said I wasn't primarily interested in cost as a means of control but that I was interested in daily labor performance records and current expense records as a means of control.

In the first place, I probably wouldn't use a job cost. I would use standards, not only on those parts that are fifty per cent standard regularly, but I would also use standards on the fifty per cent that haven't been made before. Combine those two and you should be able to tell before going into production what your goods should cost and not have to wait to check the cost until after the goods have been produced.

CHAIRMAN CROCKETT: I can't understand why people, who are making special parts never made before, have the idea that standards are inconsistent with that, because they are not. I don't care if you have never made a part before, you have to have something with which to compare it. You have to have engineering standards and you ought to have material and labor standards, upon which you can set a real estimate. You ought to do that before you sell the job. The only difference is when you are making the part over and over again, eventually you have some historical records which will perhaps help you to set those standards a little more accurately than before.

HUGH J. DAVEY, JR., (*Robbins Body Corporation, Indianapolis, Indiana*): I think the whole bone of contention is that there isn't any one arguing against standards—I think the thing was explained in detail sufficiently. Then, another thing, I think the question in the minds of a lot of people is how Mr. Jones determines the per cent of efficiency of his plant, not knowing his actual cost. In other words, he is operating his plant on standards and how does he know—

MR. JONES (interrupting): The percentage of efficiency is just the relation of actual to standard.

CHAIRMAN CROCKETT: He knows actual costs by department, if not by individual parts.

I will now call on Mr. Jordan to summarize this discussion and tie it in with the next session that is to follow.

MR. JORDAN: I want to say that I am afraid we got all off the track this afternoon in that we exhibited a discussion of detail costs.

Mr. Jones and Mr. Baum put up something quite revolutionary in their papers. Both put up a practical side which heretofore we have been spending a lot of time discussing in this Association. To be very frank, I think but very few of us know what a standard is or what standard costs are. I don't care whether you use actual costs or standard costs if you give your men what they want. I don't care what you use if you give them what they want and what they need, after understanding the circumstances, to guide them in their work. That is the big point.

We get to quibbling around on what a standard is—I get so tired of hearing these arguments about standards—this edge and the northeast corner of the southwest end or something of that kind as if the whole business depended on that. We want to weld this chain of having an organization of men, knowing what they are doing, what their particular job is, and then knowing how well they are doing their jobs. If the foreman wants actual costs, let him have them, but the psychology is to find out what he needs with which to control his work.

Whoever says that a standard changes the next morning, unless it is a case of ripping out the whole machinery, is way off on his ideas. Let's not get off the track of this convention, and that is that we must use our gray matter to measure efficiency, to make every pencil and pen mark mean something, mean the whole story in the control of a business. Present the idea of what you think a man ought to have, argue with him, gently, of course, try to show him what is best for him, but the main point is to serve the firing line of the business with records that will give them the information they need.

I am thoroughly in accord with Mr. Baum's and Mr. Jones' point, and that is the usefulness of the figures, the facilitating use of the figures—they didn't mean just speeding up work or anything like that, but rather to facilitate the planning and speed of operations. That is the principle which must underlie all of the designing of records, otherwise they become a lot of useless junk that will be no good to any one.

So, let's not argue any more about whether a standard should be round or square; let's keep before us that one thing. It is the hardest thing to keep a convention on the line. We must analyze the requirements of the business, and whether it is standard cost or actual, we must have before us all the time that psychology is what is needed to give the men in the firing line of the business that which they need to operate that business. That is our duty in business as accountants; that is what we must do. Some other time we will "scrap" out whether it is best to have a standard. Get the story to the manufacturing men that will give them the information they want just as quickly as possible. If we can get the woman to the hospital in fifteen minutes instead of three hours—all the better. That's the main point you want to keep in mind. Fit the records to the job; that's what we want. The

trouble is with most of us—I'll bet right now that in our plants, and I know it is the case in scores of plants, there are records that don't help. I know of one company where the manufacturing department and the accounting department hated each other, and rightfully so, too, because of the fact that the manufacturing department was not getting the service it should have. I have seen scores of such cases where there was that chasm between the manufacturing end and the accounting department, and the same thing in the sales end of it. That shouldn't be. That is a two-sided thing—no, it is a one-sided thing—the accounting department has for its job the giving to the engineering, manufacturing and all other departments, what they need to run the business.

They say "the way to a man's heart is through his stomach", and the way to a manufacturer's heart is to give him something that satisfies him, to help him make goods faster and cheaper and with less turnover. If you cooperate to that extent you will find out you will hoe a row for yourselves that will grow good corn.

Adjournment

SESSION III

SETTING UP THE RECORDS TO FIT THE SALES AND GENERAL ORGANIZATION

WEDNESDAY MORNING, JUNE 19, 1929

This Session Was Organized Under the Direction of

ERIC A. CAMMAN

Peat, Marwich, Mitchell & Co., New York City

D. C. LOWLES received his education in England in the public schools of London, and the City of London College. In 1900 he came to America. From 1903–1912 he was Chief Accountant of the Sherwin-Williams Co. In 1912 he went with the Cleveland Metal Products Company as Auditor, and is now the Auditor of the Perfection Stove Co. He is a member of our National Board of Directors.

S. C. ALLYN worked on a part-time basis with the Wisconsin Tax Commission, Board of Public Affairs, during his college days at the University of Wisconsin. Upon his graduation from the School of Commerce of that University in 1913, he went with the National Cash Register Company, in which organization he is now Treasurer.

SETTING UP THE RECORDS TO FIT THE SALES AND GENERAL ORGANIZATION

PRESIDENT SWEETSER: One of the things we all believe in is coordination. We don't want to build these sessions like some of the departments in business are built, with fences around them and therefore, Mr. Jordan is going to coordinate yesterday's session with the one this morning.

MR. JORDAN: We must not misunderstand yesterday's session. Personally I did not know anything about what the papers were going to be ahead of time and I would say that a very peculiar happening took place. In the papers stating what records to fit to the manufacturing organization, you will notice that the preponderance of pressure was laid on something which was almost heresy in our Association.

You have heard talk from the platform many, many times during the last ten years about the use of cost records. At yesterday's session the discussion didn't, but the papers on the use of cost records went to the absolute limit, even to eliminating any financial records whatever in Mr. Baum's paper. I want to bring out what that meant. I do not think for one moment that either Mr. Baum or Mr. Jones was advocating dropping financial cost records. Neither meant that at all. I know that because I have talked with them since. What they were trying to bring out was, to the "nth" degree, the use of cost records.

You will remember that Mr. Jones, in his fourth point, brought out, in fact, started with facilitative records and also brought in historical records as well. You must have the historical records; you must have the financial records. That had no bearing whatever on the fact that everything we have discussed for years in these conventions still holds. It doesn't affect that at all and we can still have our discussion as to best form of standard costs or actual cost for varying types of business. But what they were

bringing up, unknown to us ahead of time, was the "nth" degree of the use of records.

You will notice Mr. Baum's paper was on the basis of no money value at all, but don't forget this—the hours he used in his paper were exactly the same hours that become the basis and, extended by average day rates paid workers, become the standard costs, and eventually make the cost records which will give you inventory figures, and profit and loss, and everything of that sort. Those things are not to be discontinued at all but cost accountants and accountants in general have stayed too long on the orthodox plan of simply accounting for money as best they can and have overlooked, as brought out by both papers, the enormous field that is open to every one of them to bring that down into actual daily practice.

They are not advocating the dropping of financial records at all, but they are attempting to bring out the enormous field which I believe, personally, has been as yet untapped by cost accounting in general. Furthermore, let's look at another thing. Cost accounting is getting to be a specialized statistical proposition. You will find in the past there has been just such a chasm between accounting and the manufacturing and selling end of the business.

I am going to bring up an illustration that President Sweetser brought up at breakfast this morning. He brought up the speedometer illustration. He was at a meeting a while ago where a man brought that up and applied it very well. As I see the point a speedometer is a good proposition. First of all, it gives you the speed you are running absolutely as it happens, but don't forget in addition to that you have another dial which gives you the number of miles you went for the trip, and it gives you the number of miles in total you have been. The papers yesterday dealt more with the speed part of it and the actual historical records put through the books for control; accounts or cost of articles may be well represented by the mileage for the run and the accumulated mileage will be the general records which form the control for profit and loss account. It is all necessary. Historical records are necessary, and nothing occurred yesterday to change in any way, shape or manner that fact.

Our first session was on organization and the various jobs that men cover, to fix their responsibility. Second of all comes the big job of analyzing the situation to know what those depart-

ments need with which to do business. Our convention is not so much to discuss the actual modus operandi of how to do things but it is to bring out how necessary it is and how to go at the matter of analyzing what is necessary for certain records to fit an organization to give them what they need. An operating man in the shop doesn't care a snap of his finger about historical records; that is a matter of management. That is the field we have all been in in the past and we'll stay there, but we have to go further unless we want to be left behind.

You have to fit your work—you can't have records of standard cost or anything else without the standard times and standard material and with the standard overheads. But don't let it stop at just accounting—arrange and fit it to the organization. That was what Mr. Baum was talking about in direct labor costs.

I'll leave it to you right now—what good does it do you to sit down at night and say: "How much money have I spent today", and then count your cash and berate your head to find out where you spent your money. And then you find out, "By golly, I thought I brought enough money with me, but I'll have to get a check cashed". Instead of stopping to think how you are spending the money when you spend it, you spend it recklessly and then figure out how it went later. That was what Mr. Baum was trying to bring out. The time to control cost and make cost is while the expense is being incurred, not a month, a week, or a day after, but while it is going on, just as closely as possible —like the speedometer.

That was the whole point brought out yesterday. Don't get it into your minds that it changes in the slightest degree what you are now doing, if you are satisfied. We are not discussing whether standards are better than actual cost; that is immaterial. The point is here—the chasm between the accounting department and the operating department is because practical things are not given to the operating men to guide them while they are going. Now, why not get into that field? Why stick to the historical alone? That is the whole point that wants to be brought out. The whole object is to paint a picture of setting up an organization and setting up proper manufacturing records to back it up.

This morning we have the necessary sales records to back up the Sales Department, something which very few so far have had anything to do with. And then within those records this afternoon

we are going to try to set standards. Tomorrow morning we are going to talk incentives, using all that has preceded, and tomorrow afternoon we are going to show results that have accrued in many plants as a result of just those things.

The point is here—to make money is the only objective of any manufacturing or selling or commercial organization. How is it made? It has to be controlled—squeezed—every penny. The records we have talked for years go on just the same unless you can better them, but go further than that, get them down to something that the cost accountants in general have not yet attempted. That was the object of the session in general yesterday, so have no misunderstanding.

PRESIDENT SWEETSER: Thank you, Mr. Jordan, for the clear explanation. It gives me great pleasure to introduce Mr. Eric A. Camman of Peat, Marwick, Mitchell & Co., New York, who will be the chairman of this session.

CHAIRMAN CAMMAN: This morning we are to continue the theme started by Mr. Jordan on Tuesday morning, namely, "Organizing a Business for Profit".

The preceding session dealt with the manufacturing records. Now we are to deal with records to fit the sales and general organization.

Yesterday, under "Manufacturing Records" we talked about material control, factory overhead, labor control, normal manufacturing capacity, and waste control. In the field of sales administration the problems are somewhat different. Instead of material control we have to deal with the flow of products, after they are made, into the hands of customers. In place of labor control we have to deal with the control of salesmen, sales administration. We have overhead, of course, in distribution costs, but it is of a different character; about the only visible evidence of the overhead may be a fleet of trucks, or a number of warehouses, or a chain of branch stores. Instead of normal manufacturing capacity, we have the problems of market capacity. In place of physical waste in the factory we have to deal with waste of effort and principally, the waste of lost opportunity.

The problems relating to and reflected in the manufacturing records are more concrete. If we are making a motor and the

motor fails to run we can loosen the bolts, take off the housing, test the armature, or apply calipers to the shaft and find out what the trouble is. But if the motor fails to sell, we cannot loosen the bolts to find out why it does not appeal. We cannot remove the housing to find out why this particular product is not suitable. We cannot test an armature to find out why this product is not being properly distributed, nor can we calibrate the efficiency of salesmen.

It seems to me there is another element present in the problems of sales administration, namely, that of promotion, as well as regulation. Control involves both. Questions to which it is necessary to find the answers are, where are the customers who will buy our products; how much can they buy and when? Who are the salesmen and how much can they sell? What is the profitableness of sales by class of product, by class of customer, by salesman, and by manner of sale? By manner of sale I mean: stock products or special products, products sold through warehouses or sold by mail-order, products sold in large or in small quantities.

It is necessary to know the answers to these questions by departments on the sales side quite as much as it is necessary to obtain manufacturing data by departments in the factory. But on the sales side the departments are to be laid out on a map of the United States by lines outlining territorial divisions. These divisions are the departments, and the products in these departments are not motors but dollars of profit.

I venture to predict that this conception, which was brought out in a paper written by William A. Sleeper recently for the Investment Bankers Association (Mr. Sleeper is a member of the N. A. C. A.) will grow and I would not be surprised to find that we will come to treat selling departments more as we treat manufacturing departments, applying selling expenses more on the basis of time.

Finally, a further difference in the problems on the sales side is that effectiveness has a more marked effect upon the profits which are the central idea of our program. The effectiveness of the organization in these departments is more noticeable in the profit and loss account. For example, if we make two motors instead of one, the cost is almost doubled, because we must buy additional material, use additional labor, and some additional overhead; but on the selling side, if we sell two motors instead of one,

the gross profit on the sale of the second motor is largely clear profit, because selling costs are mainly fixed.

Our speakers this morning are going to deal with the subject of "records to fit the sales and general organization." It would be unwelcome of me, I am sure, to stand here and take up more of your time, when they have so much to say. The speakers are: Mr. D. C. Lowles, Auditor of the Perfection Stove Company, Cleveland; and Mr. S. C. Allyn, Treasurer of the National Cash Register Company, Dayton, Ohio.

The papers are so arranged that they will fit in logically with the main program. Discussion will follow each paper.

Please bear in mind these men have taken the time and trouble to come here in order to give what they can for your benefit. Show your appreciation by asking questions. Make your questions snappy and stick to the point, but remember, ask questions.

It gives me pleasure to introduce Mr. D. C. Lowles, Auditor of the Perfection Stove Company, Cleveland, Ohio.

SETTING UP THE RECORDS TO FIT THE SALES AND GENERAL DEPARTMENTS

D. C. Lowles

Auditor, Perfection Stove Company, Cleveland, Ohio

IN this particular section of our program on "Organizing a Business for Profit" we are urged by our General Chairman, Mr. J. P. Jordan, not to overlook that very important factor of "Profit". It is not enough to simply set up "Records", and to devise Systems, or to produce beautiful and interesting Reports,—but all these must contribute to "Profit". Therefore I am going to try and keep this requirement in mind, so that any recommendations made to you regarding Sales or Administrative Records may pass the "acid-test" of helping to maintain or add to Profits.

Records of themselves, of course, are dead and uninteresting things, and may be filed if you please in dull and dusty volumes in a "Hall of Records" such as many of our governmental departments maintain,—to decay with the passing years and become fit food for rats and roaches, until utterly destroyed. So it is then, not Records themselves but the use made of Records which really

counts in the final Profit column. That is the gathering in and setting down of facts, statistics and operations, in a logical, orderly manner and the intelligent interpretation of what is thus recorded for furthering the interests of the business and making management properly effective.

Needless to say Records must be accurate. This, I think, is a prime essential, although we all appreciate there may be certain non-accounting records where an absolute mathematical accuracy is not practical. But for accounting records, accuracy is quite necessary and any compromise therewith may have serious results. Only a few months ago I learned of a large industry whose interim quarterly reports based on book inventories were so inaccurate that when the final report of the year's operations—which happened to be the first year under a new management—was issued, with the final figures adjusted of course to an actual physical inventory, the variation in earnings was so great that the stock slumped tremendously and several officials were removed.

Simplicity is almost, if not quite, as essential as accuracy in the records we are considering. Do not try to get too much into any one record—it only complicates things and makes it more difficult to obtain accuracy—and it very much reduces the possibility of obtaining satisfactory record clerks. So be sure your records are clear, concise and easily understood without redundancy of any kind.

Records in the field we are considering are usually of two kinds,—1. Accounting, 2. Statistical, the first including all essential Financial and Accounting records and the second those other records that are kept for the better information of the management and which are too often left out or but poorly used. Both kinds may be further subdivided into (a) permanent or major records and (b) temporary or supplementary records.

With these few preliminary remarks let us now proceed to cases—and consider the necessary operations or functions for which records are required. To save time and enable you better to concentrate on the subject matter, I have had prepared and placed in your hands a list of some of the essential records, forming the backbone of the record system. This list is of necessity incomplete, but it may be of value in giving you a minimum requirement which can be expanded as occasion requires.

You will note that this list does not include the general and

private ledgers, nor the general cash book which are common to all types of business and any discussion of these perhaps would not be of interest and would detract from the time we need for other records.

We must assume that the Manufacturing department have their job done and that their records are completely set up, as that has been fully covered in the preceding session. Therefore I am starting out with the Selling function and the records it is necessary to provide to take care of this function satisfactorily.

Before any product can be sold, the field it is proposed to cover first must be surveyed, divided into sections such as States, Counties, Cities, etc. and the available facts recorded that relate to the business we have to do. This requires a statistical record, preferably perhaps in card or loose-leaf form, and on it may be recorded such facts as population, income, both manufacturing and agricultural, number of dealers of the type that we desire to sell,—if selling through dealers is contemplated,—automobile registrations, water, gas, and electrical connections, principal industries, month of largest income, etc. All information of this kind should be shown comparatively whenever possible, so that the trend up or down can be noted. The record also should provide space in which to enter the actual sales results accomplished year by year by the industry using it. It is important to note that this is a record by geographical units such as Counties, which can be grouped to form larger units or territories, and yet are capable of being re-grouped at any time into other major groupings, or into different territories whenever revisions are desired. (See Figure 10).

As this first record concerns the field to be covered, a second record is required devoted to the prospects it is planned to turn into customers and to the sales made to these customers after they come into the fold. There are innumerable forms and styles of such a combined sales record and prospect list—the popular form at present being either a visible card or a visible loose-leaf sheet. These sales record cards can be grouped into as many divisions or sections as is desired. Probably a territorial division by salesmen, also separated by States and Counties will be found most useful.

It is important to remember that on the proper setting up of these two records—involving as it does, careful comprehensive

County card - (Front)

COUNTY STATE TERR NO.

Pop Principal City Sq. Miles % Urban

1920" % Urban Families % Urban Buying Power Per Capita

1910" Density % Illiterates

% Inc. or Dec. % Urban Over Rural % White % Colored

Farms % Improved % Wooded % Unimproved Av. Acreage Dwellings % Urban

No. Dealers Dealers Sold Life "Years" Stoves Heaters % Saturation

Gas Consumers Rate City % Families

Elect. Consumers Rate % Families

% Farms with Gas or Elect. Coal Mined Per Family Wood Acres Per Family

Competition

Value Added By Manuf. % Crops % P.P.Index

Mines & Fishery % L.S.& L.S.Products % S.of L.Index

Total Income Buying Power Per Family Acces. Index

Pass. Cars Per 100 Families

Tax Returns Per 100 Families

No. of Dealers Sold Hdwe. G. & M. D.S. F.S.

The reverse of this card shows a record by years and by lines of product, of the units sold in the County.

FIGURE 10

surveys and investigations,—depends very much the economy and effectiveness of the initial sales effort. Far too often much time and money is wasted trying to sell refrigerators to Eskimos and fur coats to Sandwich Islanders. In other words, a sales organization is set up which is doomed at the start to a complete or partial failure, which might have been avoided had certain facts and conditions been known beforehand.

Together these two records should help determine advertising policies, location of branches or warehousing points, number of salesmen required, etc. and they can also be used as a follow-up record for all promotional activities. (Figure 11.) This sales record card is used for recording calls made by the salesman and is also the card on which discount qualifications are noted, so that it is referred to by the order clerk when approving customers' orders.

Before a sales force can be set to work to obtain orders they must have something to sell, so for the purpose of this study we

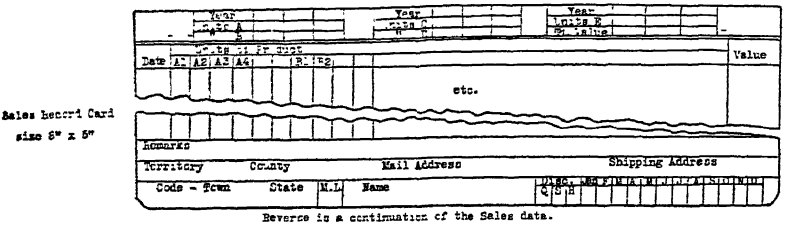


FIGURE 11

will assume that we are dealing with the selling end of a manufacturing business maintaining warehouse stocks of finished merchandise at various points. Some form of record then will be needed for such warehouse stocks on which to enter the merchandise received from the factory, the shipments made to customers and the stock on hand. There are wide variations in stock records depending upon the kind of merchandise handled, the number of items in the line, and the rapidity of movement. Small items, such as plumbing goods, general hardware, etc., are often controlled only by frequent inventories, and by recording shipments in total at each inventory period, and ascertaining the quantities shipped solely by difference—that is by adding receipts to the previous inventory and deducting the new inventory,—the difference then being shipments. This method is reasonably satisfactory where large values are not involved. Larger and more important items can be recorded individually as transactions occur by using a card record similar to that illustrated in Figure 12.

A plan that has worked exceptionally well where not too many kinds of products are involved, is that of a daily warehouse report (Figure 13) on which is entered at the beginning of each day's

work the inventory or balance on hand from the previous working day. Then entries are made for all receipts and all shipments, these latter being entered individually giving the customer's name or name of party to whom shipment was made. This report may be in duplicate or triplicate as the needs of the business require and forms a balancing record for proving the billing as to quantities. If a continuous audit is made, then one copy of this report can be given to the auditing department accompanied by copies of the customers' invoices. This record being a daily report that must be kept up, it obviates the necessity for any other stock

Finished Stock Record
Card 8 x 5

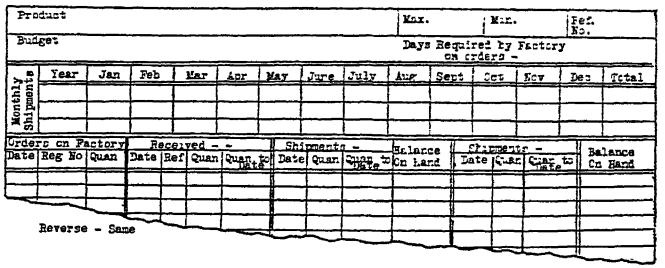


FIGURE 12

record, as the book inventory is shown daily, and it provides a complete record of shipments.

Without a separate stock record, however, some way must be provided for showing the movement of finished product and possible future requirements, so that orders for stock may be placed with the factory intelligently. This can be accomplished by means of a periodical report issued twice or three times a month, which report will show—1. Orders on hand unfilled, separated by current month, next month and later,—obtained by an inventory of all unfilled orders, 2. Stock in warehouse, 3. Stock ordered, which can be divided into in-Transit and Not-Yet-in-Transit, 4. Shipments to date—This Year and Last Year, 5. Shipments entire year last year. If desired, columns may be provided also to show "Orders to date" this year and last year, so that comparison can be made of the relative demand as well as shipments, the figures being obtained by simple addition of the shipments, as entered from the tabulations, and the inventory of unfilled orders. Consolidation of these reports for all warehouses

will then give the factory an excellent picture of current requirements in the field.

I have said here that shipments can be entered from the tabulations and just want to add the comment that where classifi-

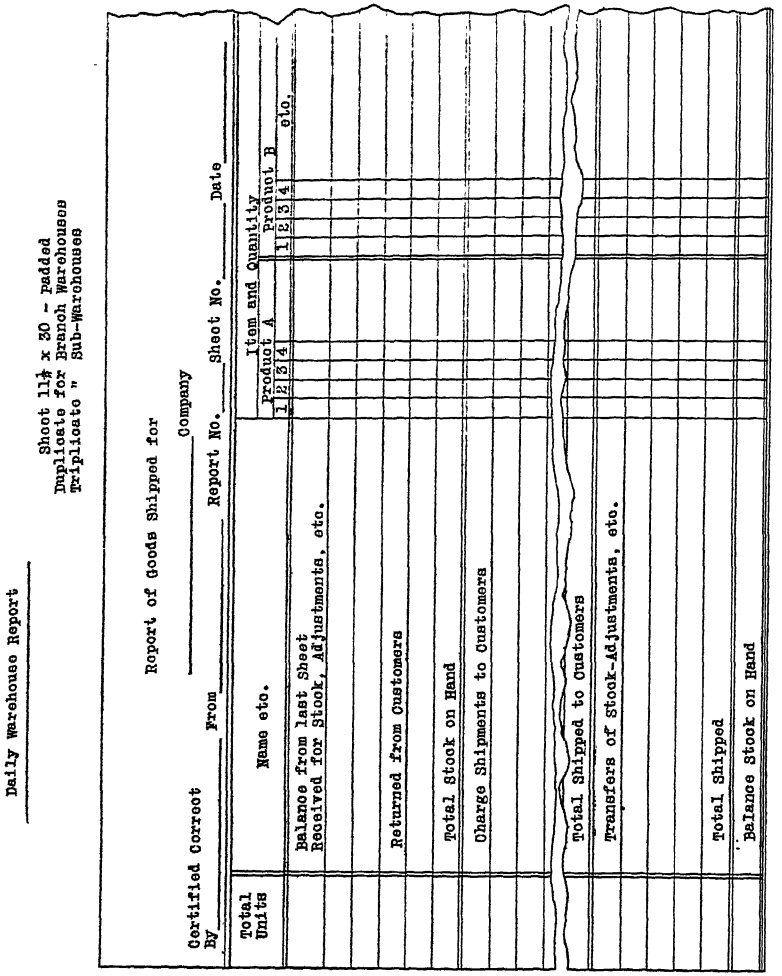


FIGURE 13

cation of shipments is desired the tabulating or punched-card method will be found most satisfactory. By using such a card, shipments can be classified under date of shipment by quantity, kind and style of product,—by price and discount,—and by county, salesman, warehouse, and district, so that accumulations may be

Control Record of Unfilled Orders, Accumulated Shipments, Stock in Transit, etc. - Sheet 11" x 18"

DISTRICT WAREHOUSE REPORT

Warehouse _____ 15 Day Period Ending _____ 19__

Product	Unfilled Orders To Be Shipped Month of 1	2	3	4 Bal. of Unfilled Orders Not Shown In Cols. 1 2 & 3	5 Total Unfilled Orders Columns 1,2,3,4	6 Stock on Hand	7 Stock in Transit	8 Stock Ordered Not in Transit	9 Total Orders This Year To Date	10 Total Orders Last Year To Date	11 % Inc. or Dec.	12 Total Shipments This Year To Date	13 Total Shipments Last Year To Date	14 % Inc. or Dec.	15 Total Shipments Last Year
A															
B															
C															
D															
E															
F															
G															

FIGURE 14

made of any data desired and corresponding comparative reports prepared.

Now to return to selling, which we left a moment ago in order to discuss warehouse records covering the product itself, it will probably be of interest at this point to consider briefly the setting of a quota for each sales representative and for each selling field

Sales Quota Record - Punched sheet 8½ x 11
Copy to each salesman monthly

TERRITORIAL SALES QUOTA AND BONUS RECORD

Year To Date

Salesman _____ District _____

Territory Number _____ Month _____

Product	Quota for Year		Accomplishment To Date		
	Units	Dollars	Units	Dollars	% of Quota
A 1					
A 2					
A 3					
A 4					
Total A					
B					
C					
D					
E					
Repairs & Accessories	-0-		-0-		
Deduct Reserve for Dealer Bonus (see Note A)	-0-		-0-		
Net Total (on Bonus of $000.00)	XXX		XXX		

Cost to Sell (Bonus $00.00) Quota % Result year to date %

Special Product Sales to date Units Dollars

Note A -
When actual dealer Bonus is determined at end of year final deduction will be made

Total Bonus
Regular Product Bonus _____
Cost to Sell Bonus _____ %
Commission Bonus _____ *
Total all Bonus Earned _____

* These items cannot be shown until December 31st.

FIGURE 15

based upon the statistical record already mentioned. Obviously in any new set-up—either a new industry or a new product in an old industry—it is not possible to use previous sales records as a guide. But it is possible, and quite practical, to determine those factors which affect the market for the product and to estimate the importance of the competition which has to be met. Trying to sell refrigerators to Eskimos is but a few degrees more foolish than some of the selling that is attempted without a proper survey of the possibilities for profitable operation. To discuss in

detail the manner of setting such quotas is beyond the limits of my subject, but having made our study and established our quotas we need a record of them, which may be in loose-leaf or any form desired. A satisfactory record for reporting results to the salesmen is illustrated in Figure 15 showing "Total quota" set, the "results-to-date" in units and percentage, and the "bonus earned", if any. In the case of a new industry or a new product, a bonus is not usually paid for the first year since there are too many uncertainties.

Let us assume our men are now in the field booking orders. Many forms are required such as route sheets, order blanks, re-

Salesman's Record of Sales made (Bookings) by Customers
Punched sheet 11" x 5½"

Territory_____
Buyer Name
Business State County Town
Product Date to be Shipped Date Rec'd
A1 A2 A3 A4 etc.

FIGURE 16

quests for advertising, call reports and, of course, expense books. These are the common necessities and need no special consideration as records. However, I do think each salesman should carry an order record of his own arranged by customers, in which he can enter the date of each order and quantities booked, also all mail orders which ought to be reported to him by the office. A loose-leaf book of convenient size with a page for each customer is best and this book can be sent into the office once a year to be checked with the sales record (Figure 11) and to have the total year's business in dollars entered on each sheet. This becomes a very valuable record on the territory, particularly when changing salesmen, and makes it possible to see that all items of product are given consideration. (See Figure 16).

In some cases, when orders are received in the office, an order register or record is used, so that each day's orders can be valued,

have a shipping date assigned, and be checked off after shipment. If, however, orders are shipped promptly, with very few futures and if shipments from stock are balanced against the billing daily, an order register is hardly necessary and too often becomes just another item of red-tape to cause delay and additional expense. If shipments are likely to be delayed copies of orders can be filed in an unfilled order file and arranged either alphabetically or by estimated date of shipment.

We have discussed already the warehouse or shipping record, so we can now consider the records relating to billing and accounting. The invoice is made from the order after shipping information is entered on it, or from the shipping order if a separate form of this kind is used. Sometimes the invoice is just a carbon or duplicator copy of the order and requires only completion with shipping date, route, price and extension. It is usual to make invoices in more than one copy, an original for the customer, an accounting copy for permanent record and posting to the ledger, and one or more copies for statistical purposes. The accounting copies of invoices can be recapped for the ledger control on loose leaf sheets or in the journal as found most convenient, while the statistical copies can be used for any kind of sales distribution statistics, by using the punched cards previously mentioned.

Posting to the ledger is a simple operation and need not be discussed here in any detail. Where the volume of transactions is heavy some method of machine bookkeeping will probably be found most satisfactory with a loose-leaf or card ledger. My own experience is favorable to the card ledger mechanically posted, as being faster to operate, more flexible for follow-up and credit purposes and easier to audit. On the ledger card or sheet should be noted sufficient credit information to facilitate approval of orders. With a credit rating and assigned credit limit on the ledger, where the operating history of the account is recorded, approval of normal orders is done very quickly. For unusual items or new accounts, reference to the credit file or special inquiry, is in order.

The ledger, if of any size, is usually separated into convenient units with a control record for each unit. This makes end-of-the-month balancing simpler and more certain. Prompt removal and segregation in a special file of dead and inactive accounts is also an advantage in handling the active ledger.

A word on remittances received from customers. An interesting remittance register for handling these is illustrated in Figure 17 —which is especially useful in branch office accounting work. Remittances as received are checked with the ledger record and the items paid marked off with the date of settlement, while notation is made of invoice dates, discount, etc. on the customer's letter or a small data slip. Then the remittances are typed on the register, which for branch offices is made up in duplicate. The total of

Record of Remittances received - Punched sheets 10¾" x 8½"

REMITTANCE REGISTER No.____

Remittances Received By _____ District Date _____

Name and Address	Invoices Paid	Accounts Receivable Credit	Discounts Class A	Class B	Class C	Amount of Check or Cash

FIGURE 17

cash received is the same as that of the bank deposit and a duplicate of the deposit slip stamped by the bank is attached to the copy of the remittance register which is sent to the main office.

Any transfers or journal entries for the ledger are typed on journal vouchers made up in duplicate, a copy being sent to the main office accounting department. The control of a branch office ledger is comparatively simple, being—a. Gross billing less credit memos, if any, as received with the daily warehouse reports, added to the previous trial balance,—b. plus or minus journal entries, —c. minus remittances and cash discounts, will give the net balance of outstanding receivables.

Operating records for the sales and administrative departments will tie up particularly with the expense ledger, entries for which come from the purchase invoice record and the cash journal, and also by journal vouchers from the general ledger. Purchases are naturally heavier in the manufacturing division than in the sales and administrative end of the business due to

purchase of raw material and supplies as well as machinery and plant equipment for manufacturing. Where the sales and general offices are maintained at the factory, most supplies will be handled through the factory stores department. As all such records have been covered in the session on "Manufacturing Records" we do not need to consider them here.

Branch offices, controlled by a head office, can use a simple form of cash disbursement record, typed in duplicate, the original

Record of Cash Disbursements $8\frac{1}{2}$" x $10\frac{3}{4}$"

CASH DISBURSEMENTS No._____

_____ Office, From _____ to _____ 19____

Due from Main Office $	APPROVED	ACCOUNTING DEPARTMENT	
Cash in bank $	District Manager	Footing and Vouchers Checked by	Check No.
Cash in Office $			Date
Vouchers Herewith $	Main Office Authority	Date	Cash Book
TOTAL $			Journal

Date	To Whom Paid	Check No.	Particulars	Amount	Charge To

FIGURE 18

to be sent to headquarters with all proper vouchers duly approved by the manager or some other responsible officer. This is the authority for re-imbursement by the chief cashier to the branch imprest fund. The duplicate record is to be kept at the branch. (Figure 18). Audits are made of course from the originals and not from the duplicates. The pay-roll can be handled in a similar way, but preferably on a different form, and, if desired, checks of a different series can be used, the total of these pay-roll checks being covered by one check on the imprest fund, so that too much publicity is not given to the pay-roll items. Where pay-roll disbursements are heavy a special pay-roll account can be carried at the bank in which is deposited the total amount and which should clear itself automatically each pay period.

In connection with the pay-roll there should be maintained some form of employees' record—if only a simple card, giving name, address, age, married or single, date employed, position, salary or wage rate and approval. This would be a permanent record showing all promotions and changes, and when the employee leaves should be filed in an "Out-of-Service" file for reference. A supplementary file can be maintained for school certificates, medical examination reports, references, data on fidelity bonds etc. if such are used.

Before setting up the records of departmental operating expense, some sort of budget or estimate should have been made so that actual expenses as they occur can be compared with this budget or estimate and kept within reasonable limits. This should be done not only for dollars of expense compared with the dollars estimated, but also for ratio of expense to sales or income compared with the standard ratio set up. If sales increase very much beyond anticipations, the expense ratio should fall, while a decreased sales volume will result in an increased ratio of expense, at least until corrections can be made in the method of operation.

Detailed reports of operating expenses for sales departments particularly, should then show comparisons both in dollars and percentages. We do not need to illustrate a detailed expense report, but a sales and operating statement for a sales district showing both these comparisons and also actual versus standard margin will probably be of interest and is therefore illustrated in Figure 19.

A similar consolidated statement combining all sales districts can be made, so that the results of any one district can be compared with the total average ratio of all. Reference can be made always to the detailed expenses making up any sub-total where the figures look out of line. For instance on "Territorial Expenses" the records of each individual territory can be referred to, from which we can see the sales, calls made, miles of automobile operation, and special expenses of every kind with the average expense cost per day, compared with other territories. Continual comparison is the secret of effective control.

Administrative departments are treated in the same way except that the cost of these departments is figured in percentage of total income. These departments are not quite as flexible as are the sales departments in the field and their volume of work is not always directly relative to sales. This is true obviously of an advertising

Report of Sales & Operating Expenses by Districts - Punched Sheet 11" x 8½"

District Sales & Operating Expense

District _____ Month _____

	ACTUAL				BUDGET				ACTUAL LAST YR.	
	Month	% of Budget Sales	Yr. to Date	% of Budget Sales	Yr. to Date		Total Yr.		Yr. to Date	
Net Sales										
Operating Expense		% of Actual Sales		% of Actual Sales		% of Budget Sales		% of Budget Sales		% of Actual Sales
Office and General										
Misc. Selling										
Territorial										
Warehouse										
Transportation										
Sales Freight										
Total Operating										
Marginal Allowance										
On Marginal Allowance Gain / Loss										
Anticipated Gain or Loss as Shown by Budget Gain / Loss										
Net Gain or Loss From Budget Gain / Loss										

FIGURE 19

department where the work done depends upon the advertising program laid out and the appropriation provided, although even here the percentage cost to sales should be shown, as, after all, the sales income must pay for it.

Final Operating or Trading Report issued Monthly

Profit Statement
for _____ 19____

	Month				Year to Date			
	This Year		Last Year		This Year		Last Year	
	Amount	%	Amount	%	Amount	%	Amount	%
Sales:								
Class A								
" B								
" C								
Total								
Production Costs:								
Class A								
" B								
" C								
Total								
Manufacturing Margin								
Unused Plant Cost and Unabsorbed Engineering								
Net Manfg. Margin								
Selling:								
Sales Administration								
Gen'l Sales Exp. A								
" B								
" C								
District Operating								
Advertising A								
" B								
" C								
Total								
Special Charges - Royalty, Patents, etc.								
Net Operating Margin								

FIGURE 20

A simple report or profit statement for showing selling and administrative expenses in relation to net sales is illustrated in Figure 20. This report may carry as much detail as is required, but it is usually better to show the detail elsewhere, such as the Total District Operating in Figure 19, carrying only the total forward to this profit statement.

This, again, is supplementary to the general statement of gain or loss, into which finally the work of all these records must merge, and it is in order to make the result a gain rather than a loss that we are particular to see that the records are properly set up. No one is in as good a position as is the accountant to see that these records are all they ought to be and I would suggest therefore that in every institution some one individual—the chief accounting executive or an assistant—be made responsible for all forms and systems, to be the "clearing house" if you will for the records used. The coordination of departmental record work, the avoidance of duplication and expensive reports, demands some centralized authority and responsibility.

It is impossible, within the limits of one short paper such as this, to present all the records to be used in sales and administrative work, neither have I attempted any discussion of the balance sheet or the universally obvious records, but I have tried to give you an outline of some of those that are essential and of some interest—yet which can be enlarged indefinitely or elaborated upon at your discretion.

CHAIRMAN CAMMAN: It seems to me Mr. Lowles has adhered admirably to the topic. He stuck strictly to the subject and has brought you a number of illustrations of records to fit both the selling and the general organization. Mr. Lowles will be glad to answer any questions you may have.

W. A. RUTZ: *(American Multigraph Company, Cleveland, Ohio):* I would like to ask Mr. Lowles, in setting standards or quotas for various territories, your standards are set prior to the first of the year. Take, for example, the Chicago territory, you will set a quota along about in November or December, or probably before that, based on that particular manager's contact in the Chicago district. Along about April, May, June, or the first of July, you make a change of managers. How does that affect your standard or quota?

MR. LOWLES: It doesn't affect it. The quotas are set by the auditor and statistical department and they are not changed. Neither does the change of a salesman; if a salesman leaves after four months work, the new salesman gets that portion assigned to the first man.

MR. RUTZ: In other words, you do not take into consideration that man's personal contact in the particular territory?

MR. LOWLES: No.

CHAIRMAN CAMMAN: I think you can probably get that point cleared up in the session on quotas.

N. J. BOWNE: I hope this is to the point. In connection with the statistical survey, is it made by or under the jurisdiction of the sales organization, or under or by the general management?

MR. LOWLES: The survey is a statistical proposition and we have a statistical department—what we call a statistical and commercial research department—that makes that study. That happens to be under the auditor, which is not a necessity and is an accident, but the statistical department makes the survey, and not the sales department. They make it for the sales department.

W. B. McCLOSKEY: *(Cost Accountant, The National Fertilizer Association, Washington, D. C.):* I would like to ask on what basis or percentage, referring to Figure 20, are general sales and advertising expenses distributed?

MR. LOWLES: For the purpose of this statement they are included in the total. In other words, total sales expense and total advertising appear here. It happens to be figured on this report as a percentage of sales, but that is not necessary. Sales expenses are allocated but that question would require too long a discussion to be included here.

C. W. HALLIGAN: *(Manager, Accounting Department, Rubber Manufacturers Association, New York City)*: Do you find it necessary to control your branch warehouse stocks by size and type, from the main office?

MR. LOWLES: Yes.

C. E. COPE: *(Auditor, Gardner Denver Company, Quincy, Illinois):* Do you keep a stock record in addition to the report which is sent in daily?

MR. LOWLES: No. I mentioned in the paper that there is no other stock record than that daily report.

MR. COPE: What method do you use in case you happen to get a branch man or salesman who fails to report the stock correctly? Do you have to take his report? Suppose he sold some stock and didn't report it?

MR. LOWLES: It is a continuous audit. You might have to have the other record. That is the reason I illustrated it.

H. E. SONES: Is your advertising department record combined with your sales records, showing your district in which you are going to spend your money for advertising, based along with sales quotas?

MR. LOWLES: The program is based entirely on the statistical information carried on those cards, which is Figure 10. In other words, the location of the business in geographical units forms the distribution of advertising appropriation.

MR. SONES: Do you attempt to show the cost per unit for advertising by district, that is, to show whether you are spending too much money in one district to sell a certain unit?

MR. LOWLES: No. Only by product.

C. H. TOWNS: Are the people who prepare these reports that are made up by the district office under the supervision of the sales department or the auditing department?

MR. LOWLES: The branch organization is entirely under the supervision of the branch manager and all the branch managers are under the supervision of the general sales manager. The auditor has control entirely of the functions of accounting and auditing and statistics, but he has no control of individuals.

W. F. WOODBURY: In regard to Figure 10, where do you obtain the information and how often do you change it?

MR. LOWLES: In Figure 10, statistical information for counties, and so forth, is obtained from governmental sources, a national conference board and any and every possibility that we can find. We have found it necessary to go to Washington and get the government to change the method of reporting the census information in order that we might have correct data for these reports. We get information wherever we can find it.

MR. WOODBURY: How often do you change that information?

MR. LOWLES: That information is kept up to date. It is changed whenever it is necessary.

JOHN P. VANCE: *(Comptroller, Caslon Company, Toledo, Ohio):* Do you ever find it necessary, in your sales expense items, to register the salesmen's expenses and time by customers or calls?

MR. LOWLES: Yes, we report the calls and note the expense per call so we can allocate that at any time and cut out calls that are too far afield. We cut out customers who do not buy enough to make it worth while to call on them.

G. A. WARE: On Figure 19, is the net gain or loss from the budget carried forward and tied in with a yearly budget of expected profits?

MR. LOWLES: Yes, it is. We do have, in setting up the budget, a budgeted profit for the year. That is consolidated so we can tell where the losses are, but it is a memorandum report only.

C. A. RENARD: *(Auditor, Ralston Purina Company, St. Louis, Missouri):* On Figure 16, you indicate that you show your quota and accomplishment in dollars; also, in units. What good do you get out of the dollar items?

MR. LOWLES: The advantage in showing dollars as well as units is that the man will sell higher priced merchandise. In other words, you increase your sales total; also, you increase your total manufacturing without using up your sales possibility. For example, if you can sell a customer a $500 item instead of a $100

item you have used one prospect but you have five times the manufacturing units, and that is worth while.

P. L. JACOBY: *(Manager of Cost and Statistical Department, Ralston Purina Company, St. Louis, Missouri):* How does a price change affect the dollar amount on this report—Figure 15?

MR. LOWLES: Price changes today are not important. If they were we would revise the quota.

J. E. HORN: *(Comptroller, Bakelite Corporation, New York City):* On Figure 20, is this statement also prepared according to district, and is each district given a copy of its own report?

MR. LOWLES: Figure 20 is a final operating or trading report. It includes totals brought from other reports. The district final report is similar to Figure 10. The district is not transferred into final profit but only against what we expect it to do. If the district is allowed twenty per cent to sell, that is all we charge against the district.

MR. HORN: Is each district informed of its net profit or only its gross profit? How far down the line is this information handed out in each district? Does it stop with the district manager? How far down the line is the information on the final operating statement handed out? In other words, what executives get this information?

MR. LOWLES: The district operating statement goes to all managers. They get a copy of their own operations. They also get a copy of the consolidated report which is the same as Figure 19, but covers all districts. Figure 11, which covers final profit, goes only to the directors.

A. J. C. BEACROFT: *(Auditor, Roller Bearing Company of America, Trenton, New Jersey):* Do you show any record of canceled sales or return sales?

MR. LOWLES: Yes, we keep a record monthly of sales that are canceled, subdivided according to the reason. Most of the

reasons will fall under the heading of credits. There are very few cancelations due to other causes, although on a new product you will get quite a number of returns, and we do keep a report of that kind.

MR. BEACROFT: On Figure 15, does that show the net sales by territory?

MR. LOWLES: Yes, by territory.

MR. C. C. JAMES (*General Auditor, Westinghouse Electric & Mfg. Co., Pittsburgh, Pennsylvania*): On Figure 19, will you please elaborate upon the last four items.

MR. LOWLES: The "marginal allowance" is the actual and the amount set up in the budget. If we allow a district twenty per cent to operate for the year that is its allowance. Now, that twenty per cent operating expense is allocated by months according to the sales expectancy. Four months, five months may cover five-twelfths of the sales. Therefore, under the budget column you will see a budget for the month on expense and a budget for the year so that the marginal gain or loss is shown, first, against the total of twenty per cent; second, against the anticipated expenditures of the twenty per cent to that date.

C. W. GLEASON, C. P. A., *Cleveland, Ohio:* There are certain variable sales expenses over which the sales manager has control. Should the budget on these items be set at so much per unit and the budget figured by the accountant when the actual volume for the period is known or should the expense be budgeted on the number of units given in the quota?

MR. LOWLES: There are a number of items in sales expense which are variable. When that budget is set they must be based upon the quota of sales which you are assigned. If those sales vary during the year you have two ways to check it, percentage and dollars. I don't know whether I have answered your question or not, but to go into budgets is quite a long story.

CHAIRMAN CAMMAN: I'm sure we are all sorry we have to stop Mr. Lowles at this point in order to permit Mr. Allyn to have some time left.

Mr. Allyn has made the trip here today at some sacrifice with the sole object of speaking to you on this program because of his interest in it. Mr. Allyn needs no introduction; we have heard him before on our program. So without further delay, I have the honor to introduce Mr. S. C. Allyn, Treasurer of the National Cash Register Company of Dayton, Ohio.

SALES RECORDS

S. C. ALLYN

Treasurer, National Cash Register Company, Dayton, Ohio

IT is a pleasure to be with you and take part in the work which our association is doing.

When Dr. McLeod asked me to speak on Sales Records, I was interested because I am of the opinion that accountants as a rule do not pay enough attention to the sales end of a business. This day and age of business is such that the accounting officer should function closely with every branch and phase of the business.

My idea of an accountant may be entirely different from that of many other people but I believe the accountant of the future is going to look ahead more and keep more in step with the rest of the organization. He is not going to be looking backward when the sales and other departments are looking ahead.

I am not going to read a paper. I am going to use charts and a blackboard. Let me say in the cash register business we always use charts, because we believe in teaching through the eye. We think it is more effective. What you see you believe and understand more readily than what you hear.

I always have thought that the function of accounting is to render a service to management. If sales records are necessary for closer and more effective supervision, then the accounting officer is interested.

In order to explain our sales records, it is necessary first to explain our sales organization and our quota system. We divide the entire United States into 6 sales divisions.

Northeastern	Central
Southeastern	Southern
Northern	Pacific

These divisions are subdivided into sales agencies, each of which is in charge of a sales agent, who in turn divides his agency into territories, each of which is in charge of a salesman. Each sales agent carries a quota for his agency and each salesman carries a certain quota for his own personal territory.

It is necessary here to explain quotas and how they are set. In establishing quotas, the units are expressed in points, each point representing $25.00 in sales. For example, if a salesman sells a $500.00 cash register, his record would be credited with 20 sales points. Quotas are established on three things:

(1) Merchant population. (Most important)
(2) Past experience.
(3) Local conditions.

Quotas set are possible of obtainment. Take a typical territory for example. I picked one out at random, Jackson, Michigan territory. (See Figure 21).

Consists of 5 counties.
Merchant population—4376.
Quota for this territory—270 points.

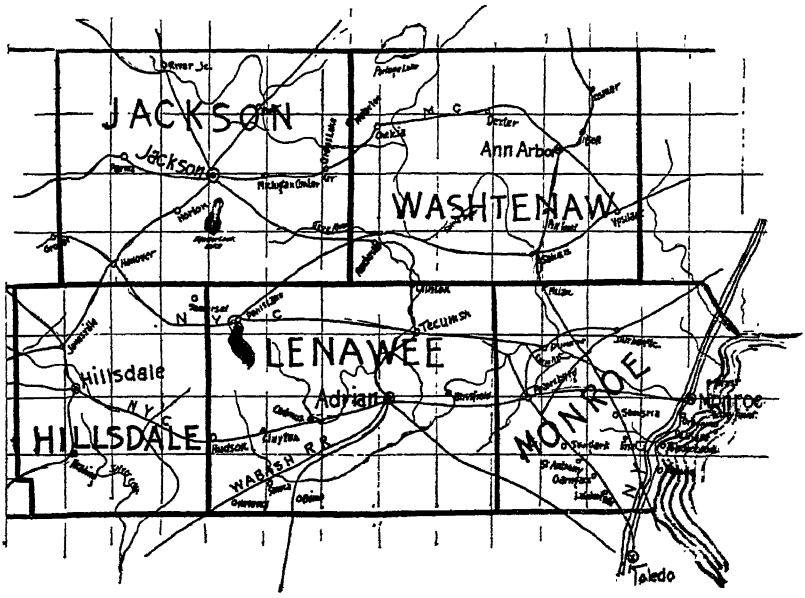


FIGURE 21

The agent divides this territory into four subdivisions with a quota of 100 points for each subdivision. The agent has four men working with a quota of 100 points each, or 400 points, whereas

Summary Report of Orders Received May, 27/29

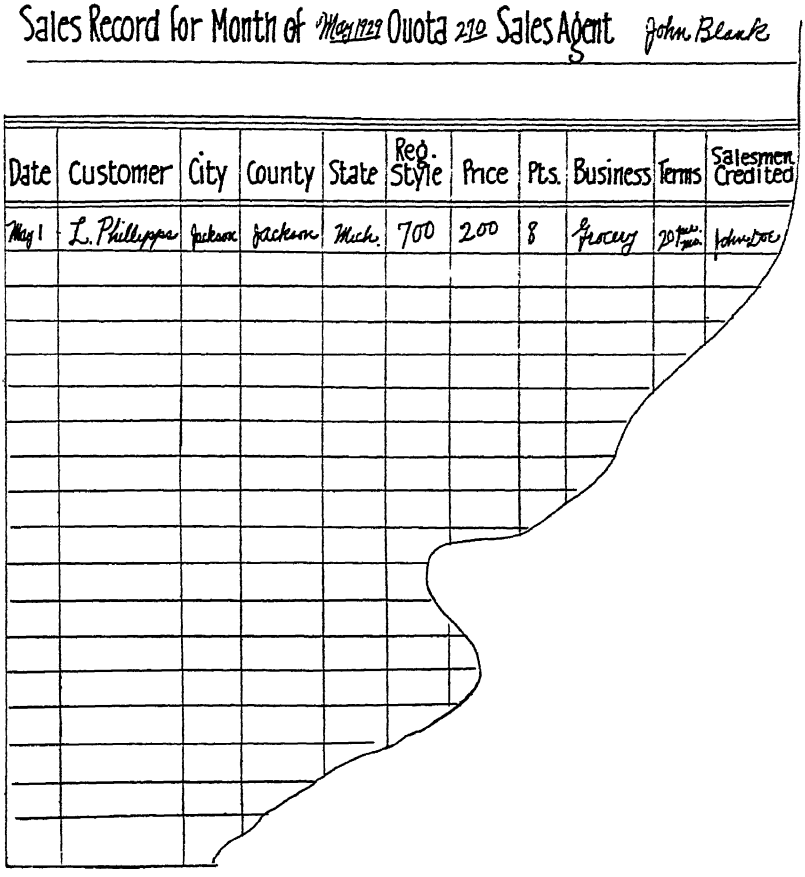
Division	Sales	points	Class 700		Class 1000		Class 1800		Class N:2000		Class 2000	
			Sls.	Pts.	Sls.	Pts.	Sls.	Pts	Sls.	Pts.	Sls.	Pts.
Pacific	155	1295	50	240	13	121	8	86	11	288	1	22
Canadian	102	1014	50	280	10	125	4	68	3	99		
Northeastern	251	2314	102	575	27	240	12	159	8	187	6	507
Southeastern	199	1915	64	319	31	271	11	148	15	398	4	292
Northern	256	1541	145	578	8	78	4	55	9	191		
Central	176	1909	75	302	9	28	8	103	9	235	11	692
Southern	120	1154	24	110	14	133	7	97	13	296	1	79
Today's Totals	1257	11140	510	2413	112	1050	54	716	68	1694	22	1592
Total's for Month to Date	12151	132038	3709	19073	1145	10548	665	8916	1090	26808	374	25295

FIGURE 22

his agency quota is only 270 points. Hence if one salesman falls down, the agency quota can be obtained.

Now we come to the question of records. When an order comes to Dayton, it goes to our agents' records division. We distribute these orders by divisions, viz: northeastern, central, etc. At eleven o'clock every morning a report is sent out to every agency of the

orders received by divisions. In the afternoon, a bulletin is issued to the factory showing how many points were received today, how many for the month to date, the percentage of quota for each


Sales Record for Month of May 1929 Quota 210 Sales Agent John Blank

Date	Customer	City	County	State	Reg. Style	Price	Pts.	Business	Terms	Salesmen Credited
May 1	L. Phillippa	Jackson	Jackson	Mich.	700	200	8	Grocery	20 10 mo.	John Doe

FIGURE 23

division and a comparative standing for the same day of the previous year. We want our men in the factory, and through the offices, as much interested in the sales as are all the rest. That is the first report we prepare—our daily report by divisions.

Our next step is a summary by all the divisions (Figure 22), showing the number of machines sold, the sales points and the percentage of quota obtained. After we get that information on the

divisional reports, we analyze these records by agencies. (Figure 23) On the agency record we show the customer's name, city, state, register price, points, type of business, terms, salesman credited, and other detailed information.

Twice a week we get out what we call a regular blackboard. On that blackboard is every man in the American selling force. It contains approximately 1500 names. It shows each man's quota. It shows the net points he has secured from January first to date and the number of points from the first of the current month to date. This blackboard, in my opinion, is one of the best aids in producing business. Every salesman is watching his record as well as the record of others. They are wondering "How do I stand, and how does the other fellow stand?"

We issue monthly records. These are issued in book form. Every member of our American selling force receives a copy of this report. Figure 24 shows the sheet in this book covering the Jackson territory. We want to grade every salesman on every measurable basis we can. We want a man not only to be a good salesman but to be a good collector and to secure orders on good terms. There is much information in this monthly report.

We prepare sales records by counties. We are keenly interested in the amount of business each county produces. We watch those county records with much interest. (Figure 25) The sales department will follow up the records and find out why a salesman is not producing more business in any particular county. These records are published in comparative form for a period of years. (Figure 26) These reports are in the hands of the selling force. You can tell how much business was produced in any year in any county or territory.

We are always using our records in every way we possibly can. We go even further. The orders, after they are billed, go to the statistical department where we prepare reports by types of business. We are now selling 350 different lines of business. We want to know what we are selling to drug stores, how many to grocery stores, department stores, restaurants, etc. Then we analyze these records by agencies to see whether each agency is selling all of the different lines of business and the type of register being sold.

We know, for example, that the machine best adapted for the average drug business, sells for $600. Perhaps we go into a territory and find a $100 or $75 machine being sold to this type

of business. We are interested to find out why this salesman can not sell the drug stores the type of machine they should have. We send a special man from Dayton to help agencies that are not measuring up to our standards.

SALES RECORD FOR YEAR 1928 QUOTA 270 SALES AGENT Jackson Mich.

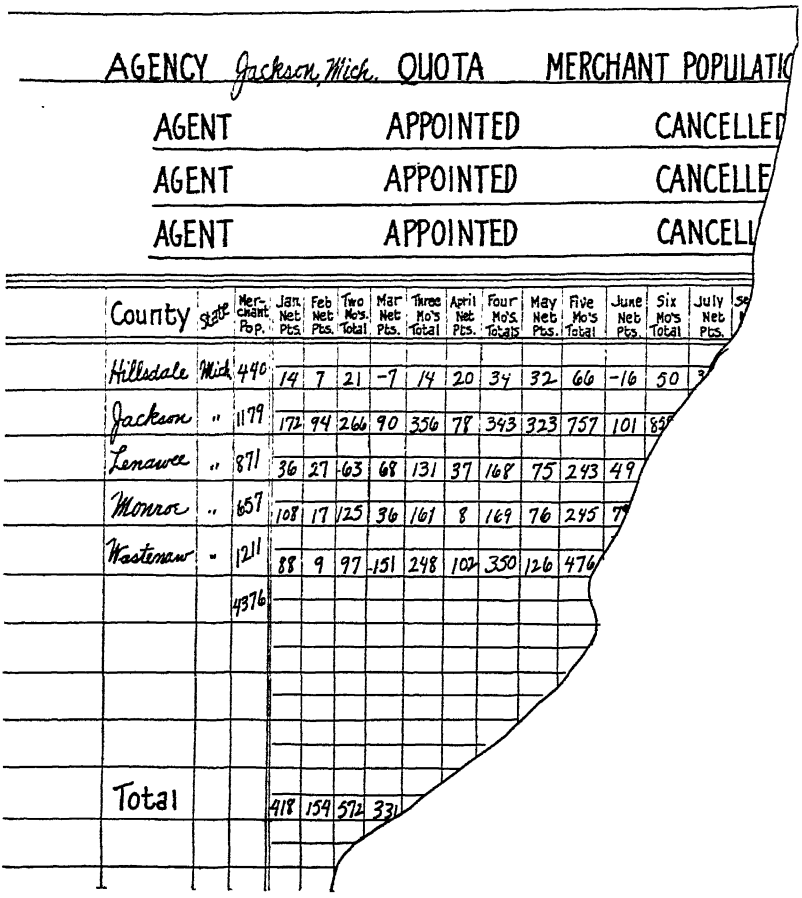
Quota	C 8	No. of Exchanges	Total Sls.	Total Pts.	Registers Sold 700	1000	1800	N-2000	2000	% Quota	Average Weeks per Order	Average Rs. Per Register	% Second-hand	% Exchange	No. of Receipts Printers		
220	Jan.	3	20	253	3	1	2			113.1	14.0		35	15			
220	Feb.	12	30	257	8	-4											
440	Yr. to Date	15	50	510	11	-3	2			87.5	14.1		48	30			
220	March	6	34	320	5	7	2	3									
660	Yr. to Date	21	84	830	16	4	4	3		99.9	13.5		38	25			
220	April.	5	46	377	4	4	4	4									
880	Yr. to Date	26	130	1207	20	8	8	7		114.4	13.5		32	22			
220	May	8	40	384	8	2	1	3									
1100	Yr. to Date	34	170	1591	28	10	9	10		120.7	13.9		34	21			
220	June	5	49	334	12	7	3										
1320	Yr. to Date	39	219	1925	40	17	12	10		122.2	13.9		32	20			
220	July	5	30	322	2	8	1	2	1								
1540	Yr. to Date	44	249	2247	42	25	13	12	1	123.4	13.3		23	20			
220	Aug.	10	43	355	4	12	6										
1760	Yr. to Date	54	292	2602	46	37	19	12	1	123.9	13.9		28	18			
220	Sept.	10	44	389	6	4	6		1								
1980	Yr. to Date	64	336	2991	52	41	25	12	2	124.0	13.7		28	21			
220	Oct.	12	43	373	6	3	5										
2200	Yr. to Date	76	379	3364	58	44	30	12	2	124.7	13.3		30	22			
220	Nov.	10	28	345	-3	3	1	1	2								
2420	Yr. to Date	84	407	3709	55	47	31	13	4	125.6	13.9		31	23			
220	Dec.	9	16	198	4		1		1								
2640	Yr. to Date	95	423	3907	59	47	32	13	5	120.1	13.9		31	24			

FIGURE 24

These are, in principle, the type of sales records which we are using. As I have said before, as an accountant, why should you be interested in them? Because you are producing records that help the Sales Department to more effectively and closely supervise. After all, the prime duty of an accountant is to aid

management. Sales records and the setting of quota are excellent things but their real value lies in the use which is made of them.

The first thing we do is to give publicity to our sales record.



AGENCY Jackson, Mich. QUOTA MERCHANT POPULATIO

AGENT APPOINTED CANCELLED

AGENT APPOINTED CANCELLE

AGENT APPOINTED CANCELL

County	State	Mer-chant Pop.	Jan Net Pts.	Feb Net Pts.	Two Mo's Total	Mar Net Pts.	Three Mo's Total	April Net Pts.	Four Mo's Totals	May Net Pts.	Five Mo's Total	June Net Pts.	Six Mo's Total	July Net Pts.	Se
Hillsdale	Mich	490	14	7	21	-7	14	20	34	32	66	-16	50	3	
Jackson	"	1179	172	94	266	90	356	78	343	323	757	101	85		
Lenawee	"	871	36	27	63	68	131	37	168	75	243	49			
Monroe	"	657	108	17	125	36	161	8	169	76	245	7			
Washtenaw	"	1211	88	9	97	151	248	102	350	126	476				
		4376													
Total			418	154	572	331									

FIGURE 25

The use of our sales records creates a spirit of rivalry and pride in the personal record. We strive to build up a spirit of rivalry between divisions. Our first thought of each salesman is to get our men to secure quota and then to better quota.

We start on a yearly basis. We have the Hundred Per Cent Club. This club was organized 20 years ago. To qualify, a sales-

man must secure 100% of his yearly quota, with a minimum of 1,200 points per year. The men who qualify for the Hundred Per Cent Club are brought to the factory and a convention is

NET POINTS BY COUNTIES

Agency Jackson Mich. Quota 270 Merchant Population 4376

County	State	Merchant Population			Net Points				
		1924	1928		1924	1925	1926	1927	1928
Hillsdale	Mich.	413	440		87	168	162	165	103
Jackson	"	1103	1197		1064	1479	1526	1186	1430
Lenawee	"	782	871		301	529	271	481	408
Monroe	"	502	657		312	264	415	338	328
Washtenaw	"	999	1211		1232	1022	1651	1165	
		3799	4376		2996	3462	4031	332	

FIGURE 26

held in January. All expenses of these conventions are paid by the company. We put on regular selling programs illustrating the best selling methods in pageants and playlets.

During recent years we have varied our program. We have brought our Hundred Point Club to the factory for the first three days and then to New York for the remainder of the week. Time

in Dayton devoted to selling, time in New York devoted to entertainment. We have taken our Hundred Point Club to Bermuda, California and to Havana with the entire expense paid by the company. It is a big factor in building up our sales and the biggest inducement we can offer for extra effort. It is the one big contest which starts on January 1 and continues until the sales agent or salesman has secured 100% of his entire year's quota. We are constantly watching progress of members of our field force during the year, checking them on whether they are candidates and encouraging and stimulating these men to travel at a 100% gait. You should see the effort put forth at the close of the year by the men to qualify, particularly if they are within striking distance.

We hold the Hundred Point Club Convention the fourth week in January. In order to prevent our salesmen from resting after the year is over we offer good cash prizes for all those who come to the convention with their January quota. A man is proud to come in as a "one hundred pointer"; he is also proud to come in and say, "I have my quota for the month of January".

Sometimes the men run an "appreciation month"—usually in February. We work out the details for them and the men run it themselves. If a salesman is a good loyal employee he doesn't want to have a bad month in February because that is "appreciation month" to the Company for the many things the Company does for him.

In March, we start our "Four Months Contest." That is for March, April, May, and June. We send out a prize catalogue displaying many useful prizes which can be won. Lists of prizes from which the salesman may make a selection if 110% of his quota is obtained, more expensive lists of prizes for 120%, another for 130%, etc. To whom do we send this prize catalogue? We do not send it to the salesman; we send it to his wife. The wife likes to pick the expensive prize which requires a large per cent of quota to win.

In May we always put on an unusual contest. This year we are building a big addition to our plant. We thought we would put on a building contest for the selling force. We wanted the men in the field to feel they were helping to build that building. It was also the fiftieth anniversary of the Company. We sent out to every salesman in the field the picture of the plant which we

are building. We have pitted every agency against some other agency. We wanted them to make a completed building like this (showing picture of the building). Then we gave them an uncompleted building. (Showing chart of uncompleted building). After all, human nature is about the same the world over. Everyone likes to be a winner and likes to do things because he hopes to be rewarded, or for fear he will be punished. We furnished them with sections of building to be posted in as different percentages of quotas were obtained. Block No. 1 was for five per cent of quota, and so on until the whole building could be built. So, you see, our salesmen were building our new building during the month of May. Then we sent out a regular blue print. The contractor was the American Selling Force; the architect was the National Cash Register Company. There was a set of tools, and so on, and by keeping these sales records and having these incentives, the result was that we had the biggest month in the history of the Company's business and everyone was pleased.

So, what are we getting out of these sales records? We are getting a spirit of rivalry. We are getting people proud of their records, people who want to do well and want to excel others. We are doing it for one thing only. We know if we demand business we are going to get more business. I believe our business would fall down thirty per cent if we didn't keep sales records that serve as a basis for incentives. I believe our men are working harder than the average men work. The net result is shown in the net profit. That is the reason I am interested in sales records.

CHAIRMAN CAMMAN: We have ten minutes left for questions. I think Mr. Allyn will be glad to answer your questions.

GEORGE REA (*Staff Manager, Touche, Niven and Company, New York City*): In our session so far we have been emphasizing keeping records we can use and using the records we keep.

How did the National Cash Register Company ascertain the mass of statistics furnished salesmen that makes go-getters of them?

MR. ALLYN: I would say thirty years' experience. We have had quotas for thirty years.

MR. REA: I refer to salesmen.

MR. ALLYN: There is a great *esprit de corps* among the National Cash Register Company salesmen.

MR. REA: I know you get results because you are selling machines, but have you actually demonstrated to yourselves that these statistics are worth all they cost?

MR. ALLYN: At times we have cut out part of our statistics and gone right back to them again.

A. C. FARRELL (*Sales Accountant, Dennison Manufacturing Company, Framingham, Massachusetts*): What is the particular advantage, Mr. Allyn, of expressing your sales in points rather than in dollars?

MR. ALLYN: I think it is really history with us, in a way. The real advantage that I see is that you don't have to string out a great list of figures.

MR. FARRELL: Wouldn't thousands of dollars do as well?

MR. ALLYN: We get down to $60 registers. Take a case where there is $5,000, the points are easier to list.

J. F. STILES (*Comptroller, Abbott Laboratories, North Chicago, Illinois*): Does every dollar of sales count for the same volume in the quota, regardless of what machines or what type?

MR. ALLYN: We figure that by supervision we will get the right grade of sales.

MR. STILES: How about new business?

MR. ALLYN: I am talking about cash registers. We split it. We have both, but we are doing the same thing with the accounting.

MR. STILES: Do you have the same men?

MR. ALLYN: No, different men.

HERBERT J. WEBER (*General Accountant, The Henderson Lithograph Company, Cincinnati, Ohio*): In the case of a salesman selling a specially made product, is the salesman entitled to know the amount of profit or loss on the article he sells?

MR. ALLYN: No, he doesn't know anything about it.

J. J. NOLL: I was wondering what consideration you give on the saturation point on previous sales?

MR. ALLYN: I met a fellow who got out of business thirty-five years ago who thought the market was being saturated. I can tell you our business always doubles every ten years. The main thing is we do it. We make our machines obsolete.

V. M. COLLINS (*Treasurer, Rome Wire Company, Rome, New York*): I would like to ask if you ever thought it worth while to give statistics, or keep statistics, that would show profit by salesmen?

MR. ALLYN: No, we keep statistics by agencies and divisions but not by individual salesmen. In the first place, all our men are working on a one hundred per cent commission basis. All the expenses of the office are maintained by the agents. The lease is in our name but his contract is subject to cancellation in the middle of the night any night. All we look to is the sales agent to produce that business.

MR. COLLINS: Will your agent show profit by lines?

MR. ALLYN: Yes.

F. W. KILDUFF (*Sales Engineer, Remington Rand Business Service, Inc., New York City*): Do you centralize your receivables at Dayton or are they kept at the various branches?

MR. ALLYN: They are kept at Dayton.

MR. KILDUFF: Do you pass on credit?

MR. ALLYN: We do not pass on any credit. The title of the register doesn't pass until the last payment.

L. A. BARON (*Comptroller, Stutz Motor Company, Indianapolis, Indiana*): You spoke of special men going into a territory where they were falling down on their quota. When special men are sent into a territory where is the expense of such special men charged?

MR. ALLYN: It is carried as a part of the general overhead. All our special men are on a straight salary.

T. B. DUNN: Do you let your salesmen or sales agents know the cost of doing business—the cost per dollar—so they can reduce it, if possible?

MR. ALLYN: Their cost in their territory is their commission less their expenses. They all render to us profit and loss statements for their agencies, and balance sheets. Of course, we want to keep our agencies on a profitable basis because it is to our interest to have them make money. It is up to them to keep it on a profitable basis.

JAMES P. COMPTON (*Auditor, American Asphalt Roof Corporation, Kansas City, Missouri*): In the case of a repossessed machine, on what basis do you charge it back to the salesman in points?

MR. ALLYN: The unpaid balance.

HARRY J. TODD (*Plant Accountant, Dalton Adding Machine Company, Norwood, Ohio*): I understand your Company makes special machines. Do you allow your salesmen $25 for every point on those?

If the salesmen take business that will not show a profit, or not as much as on the regular cash register, what checkback have you to get after these salesmen to take that kind of business?

MR. ALLYN: A check back to me to set the price.

LEWIS LEVY (*Industrial Engineer, Real Silk Hosiery Mills, Indianapolis, Indiana*): For the sake of a forthcoming contest, do you find the salesmen hold over points to get credit in the contest?

MR. ALLYN: It may be done in some of the smaller agencies.

MR. LEVY: The point is on a practical continuation and not to a particular day or week.

MR. ALLYN: An agent would be very foolish to hold back points, when he could get all the business in April and get started for May.

JOHN J. LANG: When are the points credited to the salesman—when the order is taken or when it is shipped?

MR. ALLYN: When the order is taken.

C. E. GAUMER (*Cost Accountant, Pitman-Moore Company, Indianapolis, Indiana*): You said your machines would become obsolete because you exchanged an obsolete machine for a new one. Is the salesman penalized for the exchange of the machine?

MR. ALLYN: Not a bit. We run our exchange business on a profitable basis.

MR. GAUMER: The salesman gets the points?

MR. ALLYN: He gets points for the money difference. If he sells a $1,000 machine and takes one back for $200, he gets credit for only $800.

H. B. SPEYER: Is there an advantage in points to a man taking in a competitor's register or is there an advantage to the man for making a clean deal?

MR. ALLYN: A man gets paid on the money difference. It is to his advantage to get a straight deal. As I said before, if a man sells a $1,000 machine and allows $200 on the old machine he gets credit for points on $800.

MR. SPEYER: May I ask are all allowances fixed by the Company?

MR. ALLYN: Yes.

C. G. THEDERS (*Felt and Tarrant Manufacturing Company, Chicago, Illinois*): On time payments, is the commission credited at the time the order is taken or when the payments are made?

MR. ALLYN: Our agents have to keep what we call a required credit balance. That is to take care of cancellations. After an agent gets his required credit, we immediately return his commission as soon as the machine is shipped.

CHAIRMAN CAMMAN: Mr. Jordan wants to say a few words to you now tieing up this session with the one this afternoon.

MR. JORDAN: I want to tell you men that to me this session is rounding up into shape the whole object of this convention. You know the best cure for a neurasthenic is to get out and see something else to forget his troubles. We have been going along, as we talked today, in a certain round path in this matter of cost accounting and of records, and I want to tell you today has been a wonderful inspiration to me personally, and why? It is because you have heard two men—and I don't care anything at all about the form of records, as we have said in these sessions before, that is immaterial, it's what is behind it. What influences me in thinking that more than anything else is the two men who have spoken to you this morning.

I wonder if you noticed what Mr. Lowles said in answer to the question as to who got up all these statistics and everything of that sort. He said, "Well, we are handling them because they happen to be there". Stop and think how they happened to be there. It is because they had the sense and brains in the accounting department in that company to reach out beyond a lot of old orthodox, narrow records, and they have the things to do with the very vitals of the business and when he says, "We are handling them because they happen to be there", there is a big history behind it.

That is exactly what these conventions are for. They are to open the field to every one who is a member of this Association, to get him to see just behind and beyond the accounting methods.

Now, referring to Mr. Allyn—these men are so modest—he

gets these things out, but where did he come up from? He was former controller. He worked up. I don't know his past history, but I know he worked up. He doesn't say, "Now shall we split the sixteenth of a per cent of a standard on this side of the earth for such and such purpose or not?" No, you didn't hear a darn thing about that from either Mr. Allyn or Mr. Lowles. You have heard a big story. If any one had come in you would have heard the remark, "What the deuce have they a sales manager here for?" And yet Mr. Allyn is Treasurer of the Company; he isn't the sales manager at all. He was controller of the Company. He has never been in the selling end, yet he talked all these schemes with a smile on his face, pulling business all the time, getting at the home, getting at the wife, and you're at a fine place when you get at that.

We get neurasthenic when we talk standard costs and actual costs and we will argue about those things. What do we care what kind of a cost it is if it gives what people need to run their business? What do we care if we do it as Mr. Lowles modestly said, "We are handling them because they happen to be there"? How did it get there? It was because they didn't stop at any old orthodox methods, but got to using their ingenuity. You noticed they had a research department.

Then Mr. Allyn came back and said they make their machines obsolete. They are not really obsolete because they get their money's worth out of the second hand machines. Why? It's because there are certain places where there is plenty of market for certain machines. He is an accountant—not active at it now. Why? Because he had brains enough to reach beyond it.

And Mr. Lowles, pulling the fastest one I have heard for a long time, where he got the government to change the census records to fit their requirements. Now, is it a place here to talk whether that stock record of his shall be used in this company or that company? No. It is nice to have these illustrations, but they are purely illustrations. There are many firms that can't keep any stock records at all. You have to depend on the branch managers to do that, like some of the big merchandising stores, but you have to organize your information for that condition. We are not trying to tell you how to run a stock register; we are not telling you how to use a left-handed monkey wrench.

I am as happy as can be over this morning's session, and

the whole object of my job is to bring a picture to every one in this organization of the enormously unlimited field of which he can take advantage by reaching out, by properly organizing, by studying, and by fitting records to that organization that will bring out just what these men talked about, to spur everybody on to reach beyond the little things of accounting but to use those little things of accounting as steps, so he can get up here and say, like Mr. Lowles, "Yes, we're the statistics for the whole shooting match".

Mr. Allyn comes along and you think he is the sales manager, and why? Because the advice was there of what could be done, irrespective of ideas of accounting. Keep your records on a piece of shingle if you want that. It doesn't make any difference as long as it helps to sell goods and reduce cost of manufacturing.

Review this morning's session; forget Mr. Lowles' forms, but remember what they are for, and remember what Mr. Allyn has brought out. Everything must tune to these schemes. You have brains enough to figure out your records to do that and that is what the whole conference is on.

PRESIDENT SWEETSER: The meeting is adjourned.

SESSION IV

SETTING THE STANDARDS

WEDNESDAY AFTERNOON, JUNE 19, 1929

This Session Was Organized Under the Direction of

PHILIP J. WARNER

President, Ronald Press Co., New York City

JOHN A. WILLARD was graduated from the Massachusetts Institute of Technology in 1909, and the next year was engaged on the teaching staff of that institution. He held various industrial connections of an engineering and accounting nature from 1910 to 1924, when he became a member of the firm of Bigelow, Kent, Willard & Co., Boston. He is now Treasurer of that organization. He is a member of the American Society of Mechanical Engineers and the Society of Industrial Engineers.

HOWARD C. GREER is a graduate of Northwestern University and holds a C.P.A. Certificate from Illinois and Ohio. Following several years in public accounting practice on the staff of Arthur Young and Company, he became Assistant Professor and later Professor and Chairman of the Department of Accounting at Ohio State University. He has also held the Acting Directorship of the Bureau of Business Research of that institution. Since 1927 he has been the Director of the Department of Organization and Accounting of the Institute of American Meat Packers. He is the author of a number of books and articles on accounting subjects, including "Chain Store Accounting" and "How to Understand Accounting".

CHESTER L. KINGSBURY gained his first business experience with the Oregon Short Line Railroad, following his graduation from the Stevens Institute of Technology. During the War, he was connected with the Ordnance Department of the United States Army, and from 1919 to 1922 was with C. E. Knoeppel & Co. Following this connection, he went with the American Linseed Company as statistician, and in 1927 became affiliated with the American Rolling Mill Company, of which organization he is at present Controller.

SETTING THE STANDARDS

PRESIDENT SWEETSER: It gives me great pleasure to present, as your Chairman of the afternoon session, Mr. Philip J. Warner, President of the Ronald Press Company, New York City.

PHILIP J. WARNER (*President, Ronald Press Company, New York City*): My appearance this afternoon is going to be an extremely brief one. As you know, this program is primarily the work of Mr. Jordan and inasmuch as he will coordinate and bring together all of the sessions, in my judgment, he is the logical man to preside. With your kind permission I am going to present the real Chairman of the afternoon's session—Mr. Jordan.

CHAIRMAN JORDAN: There's one thing you have to say about Phil Warner and that is he is such a "shrinking violet", but when you come to know him you'll find that is not the case. He said that he would explain why it was he wanted me to take a more active interest in this afternoon's session, and that was I want to give you, or rather correct an impression of anything you got from what he said. He has worked very hard on this convention, and we are now entering the sections of the convention which are fairly new in industry, and that is, "Setting the Standards", that to be followed tomorrow morning with "Incentives to Executives and Key Men". It is something we have never tackled yet from this standpoint.

I should have said this at the morning session, but I was really so "pepped" up over the session itself that I forgot we were ever going to have any more sessions, so I didn't mention this afternoon's session. We now have looked over the ideas of organization and we have heard papers on the fitting of records to that organization from the standpoint of making them absolutely of the type that will be useful in all ways, for financial records and for control purposes.

After we have records, the next logical step is to begin to make out of business what you had a pretty fair taste of in both

the papers this morning, and this particular feature, especially in Mr. Allyn's paper, and that is the bringing into our every day, hum-drum life an element of sports, an element of game. I have felt personally for a long time that our every day life need not be so hum-drum, that it need not be that we tumble out of bed in the morning and think, "Oh bosh, I've got to go to work".

You see thousands of people around different places standing in front of a score board of a world series game, or any other sport. You see our newspapers where we used to have about a page devoted to sports, now have anywhere from four to eight pages devoted to them. There is no more reason why we should not bring a sporting element, a competitive element, a pleasant element, a healthy element, all of which spells a profitable element, into business in the shape of healthy competition through the use of standards. When I say standards I am not talking any old orthodox kind, but I am talking now a real honest-to-goodness set of standards whereby we can gauge practically every operation in a business, whether it is selling, whether it is in the plant, or no matter where it is, that we can gauge the actual operations to some goal, to some standard.

So, we have reached that point now and I am not going to talk on the matter of standards or studying standards, but I am going to say to review to you, we have our organization our responsibilities are fixed, and we have settled in our minds the nature of records we should have to back up this organization. All right, now the next thing is that we must have standards. We must have quotas for sales. We must have standards of direct labor in the plant. We must have standards of overhead. We must have standards of every conceivable kind. The next is how to set those standards. This afternoon there will be illustrations of how standards have been set. I believe you will find, that woven in with these illustrations, there will be plenty of discussion or talk or explanation of how standards should be set from the bottom up.

It is not enough to pattern yourselves after any one else in setting standards. Standards are not set the same in any two plants. You are dealing with different personalities and what we want today is not to get into any discussion whatever as to how to set standards in any one particular line of business. What we want to get is the reasoning of how you go about it to set stand-

ards. We don't want anybody to say, "All right, you can set them in that business, but not in mine".

I want to ask each of you as you listen to these papers that you do not have in your mind that you are going to find out how to set standards in your own business. Keep your mind open to get out of the discussion this afternoon how to go at it to set standards, because there isn't a single business or a single department in any business whatever where you can't get at the standards.

So, from that standpoint, please listen and think and absorb the good things that you will get this afternoon. Keep the discussion from anything that savors of other than how to go at setting standards. It is only courtesy to everybody if questions come up that are not to the point to ask you to please forgive us for not discussing them.

You may think at the start of this session you can never set standards in your work. Get that out of your mind. Search for the modus operandi of how you can set standards in your business from what goes on this afternoon.

We have three papers this afternoon. Don't be scared because they will be short enough to match out with two. The three papers will be given by Mr. Willard, Mr. Greer, and Mr. Kingsbury. I will tell you more about each one of these men as they come along. Mr. Willard is of the Boston Company we all know so well. We have heard a great deal about it. We know a great deal about it and we have known of it for a long time. We perhaps have known more of one or the other individual but the firm of Bigelow, Kent, Willard & Company of Boston has been known for a long time and very favorably. Mr. Willard has had a grilling trip of thirty hours coming from Baltimore, and bears testimony that West Baden Springs isn't the only hot place in the country. He has done us a favor in coming here and it is with great pleasure I introduce to you Mr. Willard.

I want to explain to you in the first place that Mr. Kingsbury and Mr. Willard were to have had steriopticon illustrations, but through some slip we have no lantern to use. I told Mr. Willard he would have to do like the colored parson who lost his manuscript. He said, "Brethren and sistern, I'm sorry to tell you I lost my manuscript on the way to church and I'll have to depend on the Lord today, but next Sunday I will come better prepared".

SETTING OF SALES STANDARDS

J. A. WILLARD

Bigelow, Kent, Willard & Company, Boston, Mass.

THE setting of sales standards should be a cooperative effort of the Market Research Division of a sales organization and the Cost Accounting Department. These two activities are both correlated and interdependent, because without the sales research department to determine potentials, and without the cost department to determine the actual performance, no progress in either the establishment of standards or the subsequent control of actuals compared with standards could be made.

Previous speakers at this Convention have stressed industrial organization, the establishment of proper manufacturing, operation and cost standards, together with their related budgetary controls. It is the purpose of this paper to point out wherein these activities may properly be extended to the improvement of the organization of the sales department, so that distribution of products may be put on a firmer foundation.

It is assumed that the product is ready for delivery to the sales department properly designed or styled, of a quality fully consistent with market demands, and at a minimum cost which should show a fair profit (or service charge) if sales standards are as well set and actuals as well controlled as in the manufacturing division of the business.

Developments during the past forty years in industry have passed through the various stages of improving the effectiveness of producing machines, the development of man-power and the measurement of its effectiveness, the determination of the responsibility which belongs to management, and at the present time industry has reached the phase where distribution and financial effectiveness are beginning to receive the greater share of attention which is so necessary to maintain profits. During this period of development, scientific management has made tremendous strides in improving production efficiency, with the result that the average citizen in the United States today enjoys as necessities many products which were formerly looked upon purely as luxuries.

The increase in consumer demand has resulted in a large ex-

pansion of the production facilities of the country, and particularly at the close of the World War the tremendous increase in manufacturing facilities placed almost all industries in a position where they could turn out considerably more goods than the consuming public readily could absorb. This has resulted in a tremendous increase in selling activity and expense considerably be-

COMPARATIVE ANALYSIS SALES DOLLAR FIRST 6 MOS BUSINESS-81 CONCERNS

	1926		1927		1928	
SALES VOLUME RATIO	1000		0963		0971	
SALES		1000		1000		1000
MANUFACTURING COST						
MATERIALS	581		557		555	
LABOR	.190		.188		.182	
MANUFACTURING EXPENSE	149	0920	151	0896	150	0887
GROSS PROFIT		0080		0.104		0.113
COMMERCIAL COST						
SELLING	099		132		141	
ADMINISTRATIVE	073	0162	077	0209	074	0215
NET PROFIT		*0082		*0105		*0102
AVERAGE PROFITS-PROFITABLE CONCERNS		0084		0068		0.052
AVERAGE LOSSES-LOSING CONCERNS		*0166		*0173		*0.154
NUMBER PROFITABLE CONCERNS	68		62		51	

% CHANGE IN RATIOS FROM 1926 BASIS

MATERIALS		- 4.1 %	- 45 %
LABOR		- 1.05	- 42 ·
MANUFACTURING EXPENSES		+ 1.3	+ 07 ·
SELLING EXPENSES		+33.0	+42.4
ADMINISTRATIVE EXPENSES		+ 5.5	+ 1.1
PROFITS OF PROFITABLE CONCERNS		-19.0	-38.1

* LOSS

FIGURE 27

yond the amount which could be absorbed by the amount of goods called for by normal consumer demand. As a result of the increased sales activities of the last five years, there has been built up a tremendous competition between varying products, in order that plant capacity might be utilized.

At the present time it might be said fairly that luxuries have considerably outdistanced the ordinary necessities of life in their attack on the American pocketbook.

This increase in sales effort (in many cases entirely uncontrolled and without a true knowledge of either the results obtained or sound economic policies) has resulted in a vast increase in distribution costs. In Figure 27 is shown a comparative analysis of the sales dollar for the first six months business in 1928, with 1926 and 1927, and covering eighty-one concerns. This shows a direct increase in selling cost from 9.9% in 1926 to 14.1% in 1928, and while materials and manufacturing labor have shown small decreases, the increase in selling expense over 1926 has amounted to 42.4%, with a reduction in profits of 38.1%.

A recent analysis of the distribution of the consumer's dollar for household goods, furniture, rugs, lamps, etc. is shown in Figure 28, and indicates that 58% of the money spent for house-

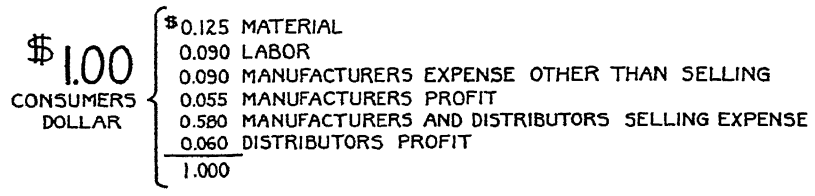


FIGURE 28

hold equipment of this nature is put forth in manufacturers' and distributors' selling expense. This tremendously large proportion of the total cost to make and sell allotted to distribution has increased so rapidly that the decline in net profits in most manufacturing industries has become alarming and has extended to all but the very largest of the manufacturers and distributors of the country.

In view of the tremendous increase in the cost of distribution, the necessity for applying similar types of control to selling as have been developed for manufacturing, is acutely apparent.

Fundamentally, sales control must start from an analysis of the business as a whole and a carefully drawn budget for the entire scope of operations. In Figure 29 we show a type of chart which is used primarily for the development of a budgetary control and the determination of the crossover point where losses stop and profits begin. This chart, while it appears complex, is nevertheless simple. The line of sales volume starts at zero and is drawn as a straight line to the point indicating the total sales for the

business in question. The cost line, however does not start at zero, but at a point above zero equal to the total of the fixed overheads, made up of the fixed manufacturing, administrative and selling expenses. The upper end of the cost line is determined by adding to the fixed overhead the various variable costs of overhead, labor and materials, as budgeted for 100% operation. This line has been indicated as a straight line, although it is realized

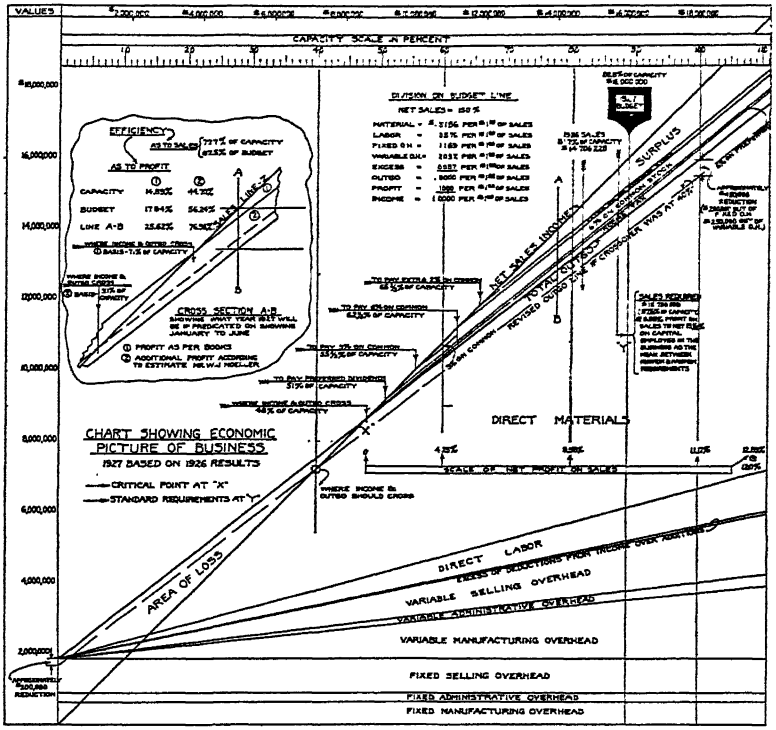


FIGURE 29

that when definitely plotted for a specific case, the cost line is a series of more or less finely divided steps, dependent on the refinement of the analysis.

To prepare a chart of this sort it is necessary, first, to determine the normal volume of the plant, as well as the normal volume of sales. 100% is then fixed at either the manufacturing or selling capacity, taking whichever is the lesser of the two amounts. In

the majority of cases it will be found that most businesses can produce more than they can sell.

After having fixed 100% of capacity, all expenses are budgeted and analyzed between fixed and variable items. The fixed items are considered to be the constant charges of insurance, depreciation and taxes, and the nucleus of organization and expense necessary to just put the plant in production so that it is all ready to start to function. If the net shut-down cost is taken, the cost line will start with a jump to cover those additional amounts necessary to actually begin operations; hence, it has been considered better to include as fixed charges the expenses of a skeleton organization.

After having prepared the budget of expenses and divided them between fixed and variable items, the chart may be drawn and from it may be determined the requirements of the business when budgeted for a profit.

This chart is particularly valuable in showing the requirements to return a normal profit on the various classes of capital stock, the capital employed, and other related financial factors, as well as the amount to be held in surplus. It is a complete picture of the operating statement.

From a consideration of the profit assurance chart which has just been discussed, and considering that the manufacturing budget has been set in accordance with the requirements of the business as a whole, the sales standards which must be determined are as follows:

1. Economic sales volume.
2. Expense standards.
    a. Direct selling expense.
    b. Indirect selling expense.
    c. Administrative expense applicable to selling.
3. Pricing.
    a. Standards for development of pricing policies.

It will be evident from the foregoing chart that the volume in units at established prices, together with controlled expense, covers all the factors involved in the protection of net profits above normal manufacturing cost.

Determination of Economic Sales Volume

In a discussion of sales forecasting we will not attempt to describe in detail the very excellent work which has been done by both Mr. Weaver of General Motors and Mr. Barber of the Walworth Manufacturing Company, because the major portion of their work has already been made available to you in excellent papers which they have presented before various associations.

This discussion will be confined mainly to a description of the function of sales forecasting, with an example worked out by methods varying distinctly from the methods of both Mr. Weaver and Mr. Barber.

The forecasting of sales volume involves the determination of the factors set forth below.

1. What can be sold?
2. How many can ultimately be sold? (Long range view to determine economic saturation point).
3. Where can sales be made?
4. When can these sales be made?

To forecast what can be sold, that the plant is equipped to manufacture, depends on the correlation of data obtained from market analysis. Knowing what to sell, the forecasting of how many can profitably be sold ultimately, is also made from the data obtained through market analysis, and in addition from an economic study of the cost to make and sell at various volumes. In other words, the economic saturation point is determined. This gives the potential, or long-range view of the situation.

To forecast how many may be sold next year, that is, short-range forecasting, a study is made of statistical information intended to show outside influences on the business.

The forecasting of *where* sales can be made is done by means of a study of territorial potentials of the buying power. The forecasting of *when* the sales can be made results from a study of seasonal variations. For instance, wool hosiery is sold to the retailer just prior to the opening of the Fall season.

Sales forecasting is usually accomplished by employing one of two methods: The "analogy" method or the "analysis" method.

Forecasting by Analogy

The work done by Mr. Barber of the Walworth Manufacturing Company is an excellent example of the numerous mathematical devices of forecasting by analogy. In a complete study of this type of forecasting device, there must be developed necessarily multiples of correlation, or weighting of differences, as well as sequences or integrals, and with these there are often combined various so-called "barometric curves" for use in forecasting. An example of the use of these curves are the correlation of primary statistics, such as:

a. Snyder's Index of Junk Prices.
b. The Composite Price Curve, such as the Harvard Sensitive Price Index.
c. The Three Months Moving Average of Machine Tool Orders.
d. Haney's P. V. Line, which might be termed "An Artificial Index".

The use of these forecasting curves is mainly to determine how many can be sold. The interpretation of these curves is not only intensely interesting but extremely difficult, as it is often difficult to be certain whether a change in a curve indicates a major turning point or a minor trend. In my own experience the "analysis" method of forecasting rather than the "analogy" method has been used mainly, as it is very difficult to determine the validity of "analogy" in dealing with business economics.

Irrespective of the method, however, all forecasting must be subject to frequent examination in the light of momentary experience. For instance, it would be well-nigh impossible to forecast:

a. The change from the silent movies to the talkies.
b. The change in policies of the Federal Reserve System.
c. The refusal of the public to continue to accept Ford's Model T.

Accordingly, irrespective of the method used for sales forecasting, the sales research department must be alert continually for new

developments and their effect, not only on the short-range forecast but the long-term forecast. As an example, it is now apparent that in the airplane industry the all-metal plane is rapidly reaching a point where it is crowding out the plane made of wood.

It does not seem necessary to include in this paper a discussion of the importance of attempting to forecast sales. In our opinion, all progressive executives are now determined that, even though they have not in the past succeeded in forecasting sales for their own businesses, they should make an attempt at least to arrive at approximate estimates of possible accomplishment. The executive himself is usually so pressed for time that he finds it wise to establish a sales research division to delve into economic statistics and utilize the records of the cost department, in order that all available information may be correlated and analyzed, and the conclusions prepared as a result of this analysis placed before him for scrutiny in the light of his own business experience. It will rarely be found that the sales or manufacturing executives of the company are equipped to prepare such studies, but it is believed that their analyses of such studies are of vast importance in correcting and evaluating the statistics presented by the sales research department. Nothing can be more confusing that unanalyzed statistics, which may or may not mean what they appear to mean.

In the preparation of an adequate sales forecast there are many complex factors encountered in analyzing market possibilities. Some of these factors covering how much can be sold will be considered as follows:

1. Secular trend, or natural growth of business.

The secular trend refers to the tendency towards growth or decline exhibited by many social and economic phenomena which affect business conditions. For instance, population increases annually, while birth rates decrease. The volume of credit transactions moves steadily upward with increasing business activity. While the movement may be retarded over short periods of time, or even reversed, the general trend is constant in direction, up or down, due to relatively persistent factors.

2. Business cycle changes.

Business cycle changes are recurring, wave-like increases and decreases in business activity, which occur at more or less regular intervals of time, giving rise to the economic phenomena known

as "prosperity" or "depression". For the purpose of comparison and study of cyclical movements, undisturbed by other fluctuations, it is of course necessary to eliminate the influence of both seasonal and secular fluctuations. The secular trend may be determined by measuring cyclical variations from a straight line, or a curve which has been fitted to a historical series, either by inspection or by the method of semi-averages, or by establishing a regression line as is customary in statistical procedure. Seasonal variations may be measured by the use of simple monthly means, by a twelve-month moving average, or by the use of linked relatives. The corrections for secular and seasonal fluctuations then become an arithmetical application of the variations as determined.

3. The Lag or Lead Concept.

The period of time between changes in one time series and changes in a related series is designated as the lag of one series or lead of the other. For example, price changes usually lead wage changes. In business forecasting the discovery of leads and their measurement furnishes a basis for predicting changes months before they occur.

The complex factors to be considered in determining where the product can be sold, cover:

1. Transportation facilities.
2. Credits.
3. State legislation.
4. Changing public demand.
5. Location of normal markets.
    a. In groups.
    b. Scattered.
    c. Urban.
    d. Rural.
6. Sectional or territorial preferences.
7. Racial factors.
8. Cultural factors.
9. Climatic conditions.

Many of the complex factors involved in the development of accurate sales forecasting are the result of external conditions, and the only information available is contained in printed statistics or by conducting a market survey by the questionnaire or interview methods.

Internal factors should be readily available, of course, in the sales and other records of the company itself.

The Department of Commerce, as well as various State and University bureaus, is constantly furnishing information as to the possibilities of both domestic and foreign markets, and many valuable commercial surveys of specific marketing areas are available. I would recommend to those interested in the development of sales forecasts the use at least of the following books:

1. "A Guide to Publications and Activities Relating to Domestic Marketing"—Department of Commerce.
2. "Commercial and Industrial Organizations of the U. S." —Department of Commerce.
3. "The Market Data Book Containing a Directory of Industrial, Trade and Class Publications"—Published by G. D. Crain, Jr., Chicago.
4. "The Source Book of Research Data"—Devoted entirely to sources of reliable statistical information, edited by Lewis H. Haney.
5. "Retail Shopping Areas—A suggested grouping of counties about 683 principal shopping centers, with 642 sub-centers indicated"—Compiled by J. Walter Thompson Company, Chicago.
6. "A Study of All American Markets, Including all Cities and Towns of 1,000 Population or More in the United States"—published by The 100,000 Group of American Cities, Chicago.
7. "Sales Management" (Magazine) Yearly Reference Number—Containing Index of Buying Power of the United States, Arranged by Counties.
8. International Magazine Survey.
9. Curtis Publishing Company Survey 1928–1929 based on circulation of the Saturday Evening Post, Ladies' Home Journal and The Country Gentleman.
10. R. L. Polk Business Census of 1926.

The careful study of the data in the above books will form a satisfactory groundwork for application of ingenuity in sales forecasting in almost any type of business.

Method of Forecasting Ultimate Sales (Economic Saturation Point)

The following is an example of how the market's economic saturation point for a concern making women's hosiery has been estimated. Statistics were available for this industry as a whole, showing the amount of goods produced. The demand for women's

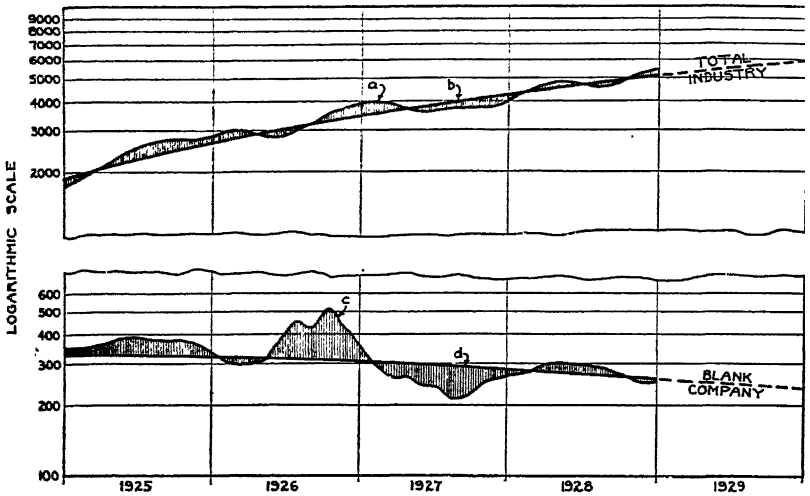


FIGURE 30

seamless and full fashioned hosiery in the United States was plotted as shown diagrammatically in Figure 30, and represents as will be noted a growing rather than a diminishing demand. In comparison with this total demand the "dozens sold" by the Blank Hosiery Company for the last four years has not represented any appreciable increase. From an inspection of these plotted data one can readily see:

1. That the Blank Hosiery Company is not enjoying its proportion of yearly increase of business (secular trend) as compared to the business obtained by the entire industry.
2. That this type of business fluctuated within narrow limits.

Analysis of Territories

In Figure 31 is shown an index of "hours required to travel" (column B). These figures represent the comparative lapse of time required by each salesman employed by the Blank Hosiery Company to travel between the main trading centers in their

ANALYSIS OF TERRITORIES

Territory A	Territory Comprises States of:	Index Travel Hours B	Customer Index C	Trips per Year Index D	Per Cent Selling Time E
1	Maine, New Hampshire, Vermont, Mass. (east)	53	189	9	78
2	New York (except N. Y. City), Conn., R.I., Mass.(west)	60	214	6	84
3	Maryland, Pennsylvania (east)	33	363	5*	92
4	New Jersey, Greater New York City (not assigned)	-	-	-	-
5	Delaware (not assigned)	-	-	-	-
6	Ohio, Pennsylvania (west)	67	494	4*	89
7	West Virginia, Virginia	67	212	8	76
8	North Carolina, South Carolina (not assigned)	-	-	-	-
9	Georgia, Florida	290	127	16	58*
10	Alabama, Mississippi	91	86	12	49*
11	Kentucky, Tennessee (not assigned)	-	-	-	-
12	Indiana, Illinois (N. E. portion), Wisconsin (south)	298	246	7	81
13	Michigan (except north of Wisconsin)	158	329	12	96
14	Wisconsin, Michigan (north of Wisconsin)	420	109	24	69
15	City of Milwaukee	(no study made of city territories)			
16	Greater Chicago City	(no study made of city territories)			
17	Illinois (except in territory 12 and 20)	42	150	11	78
18	Minnesota, South Dakota, Wisconsin (west)	104	139	9	74*
19	Iowa	145	96	15	88*
20	Missouri, Illinois (south)	98	118	12	87
21	Arkansas, Louisiana	65	99	11	54*
22	Texas (east) (not assigned)	-	-	-	-
23	Oklahoma	156*	80	15	62
24	Kansas, Nebraska, Colorado	105*	186	6*	55*
25	Nevada, Utah, Arizona, New Mexico	220	49	4	18*
26	North Dakota, Wyoming, Montana, Idaho, Oregon, Wash.	703	202	2*	47*
27	Texas (except in territory 22 above)	112	143	8	56*
28	California (note: Two men assigned)	89	201	7	69

Column A - Numbers assigned to territories - See Map - Figure 4
Column B - Index of "hours registered to travel" (see text of report)
Column C - Index of "customers" (see text of report)
Column D - Relative "trips per year" (Star (*) denotes unsatisfactory condition)
Column E - Relative possible effectual time available for selling (Star (*) denotes unsatisfactory condition)

FIGURE 31

respective territories corrected for average automobile or train travel. In column C is shown a comparative index of major customers in each territory; in some cases this index represents the number of department stores in larger cities; in other cases it represents cities of 2500 population and over (not listing department stores). The department store figures are those for cities of over 25,000 population, taken from Part 4 of "Population and Distribution" (Fourth edition), U. S. Department of Commerce—Bureau of Census, and from current trade directories for smaller places. Having estimated the relative distance between the trading areas in each territory, and from a count of the department stores and/or cities of 2500 population or more, it will be noted that the relative possible trips per year of these various territories vary considerably.

In Column D of this same figure, it is noted that four territories (Nos. 3, 6, 24 and 26) are so large that it would not be possible for the salesman to see his customers oftener than every four to

six months. On the other hand, other territories are so laid out that salesmen can see their customers about once a month. In column E another view is obtained as to the allocation of territories. Here is shown the relative percentage of time available for each salesman in selling, and in almost 40% of the cases the salesman can only spend about half his time in selling.

Effectuality of Salesmen

In addition to analyzing the various territories, the effectuality of each salesman has been analysed. In Figure 32 is tabulated the

ANALYSIS OF THE EFFECTUALITY OF SALES FORCE
(1926 figures used)

A	Name of Salesman Now on Payroll	B	C	D	Sales $ E	F	Returns $ G	H	I	J	Poor Credit $ K	L
1	Mr. Bolton		$22,176	$1,112	5.0	$ 306	2.7	-	$ 226	$ 226	1.0	6
2	Mr. Daley		15,119	959	6.3	382	6.1	$ 279	177	409	2.7	1
3	Mr. Carleton	4	4,136	240	5.8	116	2.7	1,394	264	1,658	40.0*	6
4												
5												
6	Mr. King		31,188	4,190	13.4	1,342	4.1	1,163	1,013	2,176	7.0	30
7	Mr. Hance		20,306	1,894	9.3	772	3.7	491	548	1,039	5.1	45
8												
9	Mr. McLeod	6	16,656	2,477	14.9	1,941	10.4	692	4,553	5,245	32.6*	23
10	Mr. Perkins		36,389	4,850	13.2	5,421	13.0	188	853	1,021	2.8	17
11												
12	Mr. Nieman		57,536	2,764	4.8	3,679	6.0	-	716	716	1.3	27
13	Mr. Peterson		46,563	3,500	7.2	1,090	2.1	500	921	1,421	2.9	11
14	Mr. Morris	2	4,425	750	17.0	111	2.5	261	659	1,280	27.5*	7
15	Mr. Jaeger		21,328	3,250	3.9	1,346	1.6	490	371	861	1.1	15
16	Mr. Hudson		77,589	3,245	4.2	1,433	1.8	1,007	1,710	2,717	3.5	22
17	Mr. Frost		30,814	4,737	14.1	1,101	3.4	-	600	600	2.0	12
18	Mr. Greene		61,960	5,100	8.2	3,572	6.0	-	1,159	1,159	1.9	22
19	Mr. Turnipseed		33,462	4,950	11.8	2,190	6.2	-	2,901	2,901	8.7	28
20	Mr. Schroeppel		34,697	3,600	10.4	1,490	4.1	1,028	1,007	2,035	5.9	20
21	Mr. Dawson		23,991	2,400	10.0	1,343	5.3	604	1,689	2,233	9.3	21
22												
23	Mr. R. L. Martin		39,983	2,400	6.0	2,909	6.8	428	982	1,410	3.5	8
24	Mr. Adams		56,847	6,100	6.4	5,428	5.4	365	1,650	2,015	2.0	14
25	Mr. J. D. Martin		31,405	1,882	6.0	361	1.1	393	401	794	2.5	29
26	Mr. Artell		64,854	4,800	7.4	1,602	2.4	163	1,410	1,573	2.4	18
27	Mr. Shaws		29,261	1,611	5.5	1,629	5.3	1,167	212	1,679	5.7	15
28	Mr. Smith		29,338	2,684	9.1	1,292	4.2	661	1,744	2,405	8.2	20
29	Mr. Rucker		28,344	1,680	5.9	1,416	4.8	510	276	786	2.8	16
	Miscellaneous							788	2,730	3,518	-	159
								$13,142	$26,993	$42,135		678

Column A - Territory number assigned - See Map - Figure 4
Column B - If salesman worked only portion of years 1926 - number of months
Column C - 1926 net sales (nearest dollar) subject to payment of advances and/or commissions, corrected for house sales via mail order, returns, etc.
Column D - Advances and/or commissions paid during 1926 (nearest dollar)
Column E - Percentages of advances and commissions to net sales
Column F - Net returns (nearest dollar) during 1926
Column G - Percentages of net returns to gross shipments
Column H - Bad Debts, prorated
Column I - Orders cancelled by Credit Manager
Column J - Total "ineffectual" orders obtained (Columns H and I) due to ignoring credit conditions
Column K - Percentages ineffectual orders to net sales (* Denotes unsatisfactory performance)
Column L - Number new accounts added during year

FIGURE 32

result of this analysis, including the percentage of cost of selling per salesman; of net returns to gross shipments made (see Column G); the per cent of total ineffectual orders (due to ignoring credit conditions); to net sales (see Column E); and the number of new permanent accounts added during the year (see Column L).

From the study of the figures regarding the present territorial assignments and also of the figures of the effectuality of salesmen, one can select that territory and, conversely, that salesman representing a good average of sales volume and not handicapped by:

1. Long Trips (i. e., not seeing customer often enough)
2. Poor Credit Conditions
3. Excessive Return of Goods.

Assuming that this average territory has been worked reasonably well, we then can work out an index of its potential buying power, as compared with the potential buying power of the whole United States. Having found this relationship, we can then determine what the total sales of the United States would be for all territories *(assuming that each of the other territories is as well worked as the one we have selected).*

It is assumed that the existing layout of territories and the disposition of the salesmen have evolved as the company has developed, and never have been examined thoroughly with reference to the market as a whole, or any external standard. In determining the standard of comparison which would be external and sufficiently stable to use over a period of years, a tentative evaluation or analysis by States of the potential national market for hosiery products has been made, preliminary to a more detailed analysis by counties.

Having arrived at an index of the total potential national market (summation of States), next, by the same method, corrections are made to the potential buying power for the particular territory selected as "standard". Political boundaries alone do not give a good basis for measuring the potential buying-power in certain territories. Less than half of the forty-eight states contain four-fifths of the income and two-thirds of the population. Another point which makes State figures unsatisfactory is the fact that fifty-eight main trading centers *draw an appreciable amount of their retail trade from across the State line.* To determine the potential buying-power of any one territory as compared with the potential buying-power of the total United States requires the grouping of counties around centers for retail shopping. The main purpose of this grouping of population figures, and in some cases disregarding State lines, is to get away from the misleading intricacies of trying to handle the smaller towns by themselves without relation to their rural dependent population. By throwing the county figures into groups about the main market town, the chief emphasis is placed on people as markets, rather than on political groups.

In estimating the total potential buying-power of the United States for hosiery, two factors have been considered:

a. Willingness to buy, and
b. Ability to buy.

The willingness to buy is measured by the number of families in the United States. It is realized that this index does not include unmarried men and women, but from a study of the statistics one will find that the ratio of men to women in all of the states is about equal. It excludes, however, the factor of the number of children.

The buying modes of style, emulation and economy all seem to enter into the purchase of hosiery, so that no distinction can be made. The willingness to buy exists, therefore, directly in proportion to the population, and constitutes the more important factor of the study.

The factor of ability to buy was considered separately, although it is thought to have small weight in comparison to the willingness to buy. Two indices were considered in this connection: the value of production and the income tax returns—by States. Since the total value of production tends to emphasize the purchasing power of the poorer classes (the distribution of wealth is allocated to the poorer classes in greater proportion than the amount actually received) it is believed that the ability to buy in scattered areas would be overestimated and undesirable, and this index was, therefore, rejected. Income tax returns apparently include population as an implicit weighting factor, because the total number of returns is likely to vary roughly as to the total population. In order to remove this influence, the percentages of the population of each State making income tax returns were used. These percentages represent the potentiality of the available buyers, without giving undue consideration to the total number.

The first step in the process of computation was to list the number of families from the BUREAU OF THE CENSUS REVISED ESTIMATES as of July 1925. The next step was to determine the median item in the family population array. This item was expressed as 100%, and all others were then expressed as percentages of the median figure. This process was used to get a quantitative relative measure without giving weight to the extreme items. In order to give this factor increased weight reflecting

the willingness to buy as compared to the ability to buy, these figures were weighted and another series of relative figures were obtained, which were used in combination with the ability-to-buy index. The next step in obtaining the ability-to-buy index was a duplication of the first, using percentages of population making income tax returns.

The median was found for this array, and a new set of figures was expressed as percentages of the median item, but these were not weighted as in the previous case. The weighted relative figures

ESTIMATE OF POSSIBLE SALES VOLUME FOR OKLAHOMA

Trading Center Areas	Counties in Area	Buying Index
Oklahoma City area	Oklahoma, Beckham, Blain Canadian, Cleveland, Custer, Dewey, Garvin, Kingfisher, Lincoln, McClain, Seminole Washita, Pottawatomie, Roger Mills	0.486
Tulsa area	Tulsa, Creek, Pawnee, Rogers	0.330
Muskogee area	Muskogee, Adair, Cherokee, Haskell, McIntosh, Mayes, Wagoner	0.094
Frederick area	Tillman, Greer, Harmon, Jackson, Kiowa	0.088
Okmulgee area	Okmulgee, Hughes, Okfuskee	0.063
Alva area	Woods, Beaver, Cimarron, Ellis, Harper, Texas, Woodward	0.078
Ada area	Pontotoc, Coal	0.020
Ardmore area	Carter, Jefferson, Johnston, Love, Murray	0.055
Bartlesville area	Washington	0.033
Chickasha area	Grady, Caddo	0.067
Duncan area	Stephens	0.015
Durant area	Bryan, Marshall	0.013
Enid area	Garfield, Alfalfa, Grant, Major, Noble	0.128
Guthrie area	Logan	0.022
Hugo area	Choctaw, McCurtain, Pushmataha	0.017
Lawton area	Comanche, Cotton	0.039
McAlester area	Pittsburg, Atoka, Latimer	0.033
Miami area	Ottawa, Craig, Delaware	0.056
Pawhuska area	Osage	0.029
Ponca area	Kay	0.057
Stillwater area	Payne	0.057
	Total Buying Index	1.796

(The following counties not considered:
Bowater to Coffeyville (Kan.) trading area
Sequoyah to Fort Smith (Ark.) trading area)

FIGURE 33

of families were then added to the unweighted relative figures of the percentage of population making income tax returns, and a composite index was obtained which is believed to represent relatively the quantitative potential market for men's and women's hosiery.

Having determined the total potential market, attention was next given to the location of main trading centers in the "average territory" selected, with the proper grouping of counties around these trading centers and certain counties in adjoining states. By a manner similar to that used in determining the total potential market of the United States, the potential buying-power of each

county around these trading areas in the particular territory was determined tentatively.

The "average" territory selected (see Figure 33) was that assigned to Mr. Smith, the State of Oklahoma. The estimated buying index of this territory was approximately 1.8% of the total United States. This index does not include two counties, which were assigned to trading areas in adjoining states.

Since Mr. Smith sells some $40,000 of goods in this average territory, whose estimated buying index is 1.8%, the total sales in the United States should be some $2,220,000. In other words, if all territories were laid out so that the salesman would not be handicapped by long trips, etc., and each of these territories were as effectively worked as the "standard" territory selected, it is reasonable to assume that in time the sales volume can be increased to something over two million dollars.

Computation of Economic Saturation Point

Thus far consideration has been given only to the potentialities of the market. The next step is to determine just how much of this

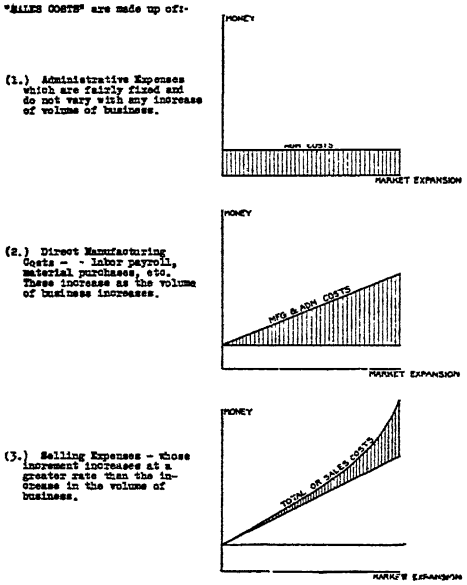


FIGURE 34

business can profitably be obtained. In other words, we are concerned with the problem of diminishing returns or we might better express it as the problem of determining the vanishing point of profit.

This problem might better be illustrated by referring to Figure 34. The so-called sales costs are a summation of the administrative expenses, the manufacturing cost and the selling expenses. The administrative expenses such as taxes, depreciation, etc. do not vary directly as the business is increased but are relatively fixed

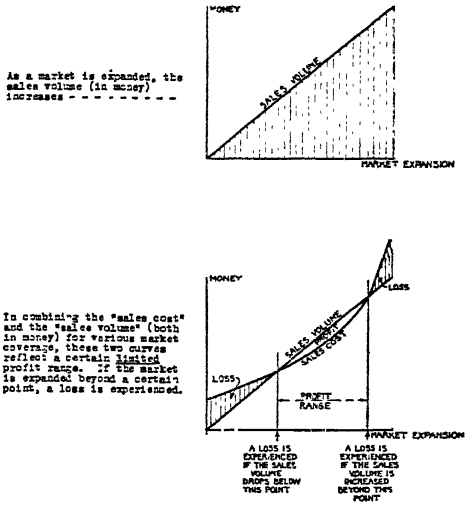


FIGURE 35

for all volumes of sales. On the other hand the direct manufacturing items vary practically in direct proportion to the increase of business done, that is, the labor payrolls and the material purchases are increased as the business increases.

The selling expenses likewise increase with the amount of business done, but these expenses usually increase in a greater proportion or at a greater rate than the increase of volume of business. In Figure 35 is shown how the curves of sales volume and sales cost approach each other and finally cross *at that volume where the cost of selling, manufacturing, etc. exceeds the amount of money obtained for the commodities sold.* It is at this point that profits vanish. In our calculation of the economic saturation point, we must determine when we shall reach this particular condition. In Figure

36 is shown a method of making this particular computation. The United States is divided into some 180 odd territories and each of these territories so laid out that salesmen working any of these territories would call on their customers with the same relative frequency—that is, all customers would be cultivated at about the same frequency during the year. Some of these territories had a relative potential buying power of approximately ten (as shown by

ECONOMIC SATURATION POINT CORPORATION

			Income			Out-Go				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Class or Type of Territory	Index of Territorial Purchasing Power	Number of Salesmen (or territories)	Salesman's Average Volume of Sales per Trip	Totals Column (2) x Column (3)	Total Cumulative Sales "Income"	Total Selling Costs (Estimated Only)	Total Cumulative Selling Costs	Total Cumulative Mfg. Costs @ 80% of Column (5)	Total Cumulative Selling + Mfg. + $5000 Adm. Costs	Profit
A over	8.7 to 10.0	2	$2500	$ 5000	$ 5000	$ 200	$ 200	$ 4000	$ 9200	
B over	7.5 to 8.7	3	2170	6510	11510	300	500	9208	14708	
C over	6.4 to 7.5	5	1870	9350	20860	500	1000	16688	22688	
D over	5.4 to 6.4	6	1600	9600	30460	600	1600	24368	30968	
E over	4.5 to 5.4	8	1350	10800	41260	800	2400	33008	40408	✓
F over	3.7 to 4.5	10	1125	11250	52510	1000	3400	42008	50408	✓
G over	3.0 to 3.7	11	925	10175	62685	1120	4500	50148	59648	✓
H over	2.4 to 3.0	12	750	9000	71685	1200	5700	57348	68048	✓
I over	1.9 to 2.4	14	600	8400	80085	1400	7100	64068	76168	✓
J over	1.4 to 1.9	16	475	7600	87685	1600	8700	70148	83848	✓
K over	1.0 to 1.4	19	350	6650	94335	1900	10600	75468	91068	✓
L over	0.6 to 1.0	22	250	5500	99835	2200	12800	79868	97668	✓
M over	0.3 to 0.6	25	150	3750	103585	2500	15300	82868	103168	✓
N - up to 0.3		34	75	2550	106135	3400	18700	84908	108608	

Note: The above territories were so laid out that each salesman could call on his customers with the relative same frequency.

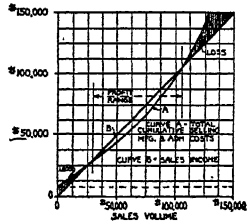


FIGURE 36

the index in Column 1)—others had a relative purchasing index of only 1/3. You will note that territories classed as "A", have a buying power index of 8.7 to 10. There are only two of these in the country. There are three of class "B", five of class "C", etc.

The estimated sales volume (per trip per salesman) naturally is some proportion of the index of territorial purchasing power already established for these various territories. In Column 5 is shown the total cumulative sales or income that can be expected to

be derived from all of these territories. You will note that one trip of the United States is supposed to net about $106,000 of sales.

As already stated all territories were laid out so that each salesman could call on his customers with the same relative frequency, therefore, the total selling costs as estimated are about the same for each of the various territories. In Column 6 are shown these estimated figures.

Since the manufacturing costs, that is, labor payrolls, material purchases, etc., vary practically in direct proportion to the increase of sales volume, it was determined from the Profit and Loss Statement furnished by the Blank Hosiery Company that the manufacturing costs averaged about 80% of the total sales volume. Thus, in Column 8 is shown an estimate of the manufacturing costs, and in Column 9 is shown the cumulative selling, manufacturing and administrative costs—(the administrative costs figured at about $5,000 for this period of making one trip in each of the territories). It is easily seen, from the computation, that a loss is sustained until sales volume of some $40,000 is reached, and also that a loss is again sustained if the attempt is made to cover the entire United States, that is, when the sales volume of about $105,000 is exceeded, a loss is experienced. Therefore, some thirty-four territories should *not* be "worked".

Expense Control

Having determined the probable sales volume in detail, and having set up the total expenditure which may safely be allowed for distribution, to give a fair net return on the capital employed, the budget of selling expense should be broken down carefully into each of the various classes of expense as developed by the cost department.

Starting out with the expense estimate for the year, the various items of expense should be broken down into monthly sums varying with the characteristic sales curve for the business in question. These amounts should be expressed, not only in actual dollars, but as a per cent of the budgeted sales as well.

The more recent developments of budgetary control provide for the accumulation of expense standards for the current month and to date, as well as the presentation of actual expenses for the current month and to date; and finally, actual expenses should be

compared with the budget as projected for the whole year. Furthermore, budgetary control should likewise provide for flexibility in adjustment of items in accordance with the actual volume attained. A performance which in some cases may appear disadvantageously through application of a fixed budget has often been found to be satisfactory through the application of the flexible budget in accordance with actual sales volume. This again emphasizes the necessity of expressing budget items as a per cent of sales volume, as well as in actual dollars.

It is perhaps unnecessary to remind you at this point that the major portion of budgeting work should be carried out on a basis of sales volume rather than manufacturing volume. Several concerns have been budgeted into bankruptcy where the manufacturing volume basis was used rather than the sales basis. In fact, their history provides an excellent illustration of the wisdom of the old accounting rule with regard to anticipated profits.

In the operation of any budgetary expense control plan it is of especial importance to investigate details with extreme care and minuteness. Oftentimes gross overall results may be reasonably satisfactory, but certain territories or products may be dissipating profits without the fact being suspected. Many of these facts can only be brought to light by a critical examination of all the details concerned in the case. One instance is known where the executive responsible for searching out leaks has found it necessary to examine invoices in considerable detail to determine the average sized order and the profitability per order, in order to determine the profitability, or lack of profitability, of a specific territory. A number of cases are known where such a detailed analysis has resulted in the abandonment of territories for classes of business which could not possibly hope to earn a profit and in which there was no necessity to continue to serve.

Mr. T. M. McNiece, of the Union Carbide and Carbon Corporation, in his address before the New York Chapter of the Association last December, presented a very valuable paper, detailing the analysis of selling costs by types of products, by sales territories, and by size of orders. It is believed that this type of analysis, developed, of course, with particular regard to the specific requirements of the business under consideration, will lead to greater certainty of satisfactory net profits in the future. It is the only way in which the manufacturer can search out and analyze the

Annual Sales Per Customer	No. of Accts.	Sales	Mfg. Cost and Adm. Exp.	Selling Expense Amount	Selling Expense %	Profit Amount	Profit %
$50,000+	9	$ 639,822.11	$ 473,468.36	$ 71,020.26	11.1	$ 95,333.49	14.9
$10,000 - $50,000	26	963,021.62	712,636.00	131,933.96	13.7	118,451.66	12.3
$1,000 - $10,000	186	1,119,637.34	828,531.63	261,995.14	23.4	29,110.57	2.6
$1 - $1,000	811	321,461.19	237,881.28	119,583.56	37.2	36,003.65*	11.2*
Total	1,032	$3,043,942.26	$2,252,517.27	$584,532.92	19.2	$206,892.07	6.8

* Red Figures

Distribution policies were changed with the following results:

322	$2,286,717.83	$1,742,478.99	$322,427.21	14.1	$221,811.63	9.7

Over three-quarters of a million dollars less sales but $15,000 more profits for the same period, and incidentally the elimination of some $350,000 of Capital Employed.

FIGURE 37

causes for increased costs of distribution, and confine himself to operation in territories and on products which will yield a satisfactory return.

Figure 37 indicates a recent case in our own experience showing where a reduction in the total number of customers from over a thousand to a little over three hundred has resulted in a reduction from $3,043,000 of sales to $2,286,000 of sales, with an increase in per cent of net profit and an actual increase of $15,000 in total profit earned. In another case the net sales of a corporation have been decreased by about 20%, but with a substantial increase in both total profit and per cent of profit on the sales dollar.

It is worth repeating that it is only by the careful examination of minute details that losses of this nature can be searched out and cut off, so that adequate standards and performance may be maintained.

It is firmly believed that the application of this type of expense control furnishes the answer to the present mounting cost of distribution, and will provide sources of profit increases far exceeding those obtained by the application of scientific management to manufacturing.

One of the largest items of selling expense occurs in the direct cost of salesmen's salaries, commissions and traveling expense. Much has been done in the past few years to attempt to bring these factors under adequate control. However, too often the experience gained in the establishment of incentives for factory workers has not been applied in the compensation of salesmen. It is realized fully that in many cases the two fields are very far apart. Standards are much more easily set in the factory; the employee is under more constant supervision, and the amount of work turned out is not dependent on the weather or the ball game; and in addition the workers are not of the highly emotional type usually found in sales work. It should be remembered, however, that both factory workers and salesmen are human beings and will react favorably to approximately the same kind of stimuli.

In Figure 38 we show a partial list of the sales incentive plans that have been developed and are now in more or less use. The first requirement is the setting of a proper standard of attainment. This requires that the external variables affecting sales must be evaluated by market analysis and the establishment of quotas to correspond, as has been discussed under "Sales Forecasting".

The second fundamental is that the total amount of money paid to salesmen must be economic, that is, it must be an amount which the business can afford to pay for getting a certain amount of business. Too often in the past sales compensation has been based on the customs of the industry rather than upon the economic consideration of what sales effort is worth to the Company.

A minimum wage standard, however, is set by the minimum living requirements of the type of salesman necessary for the

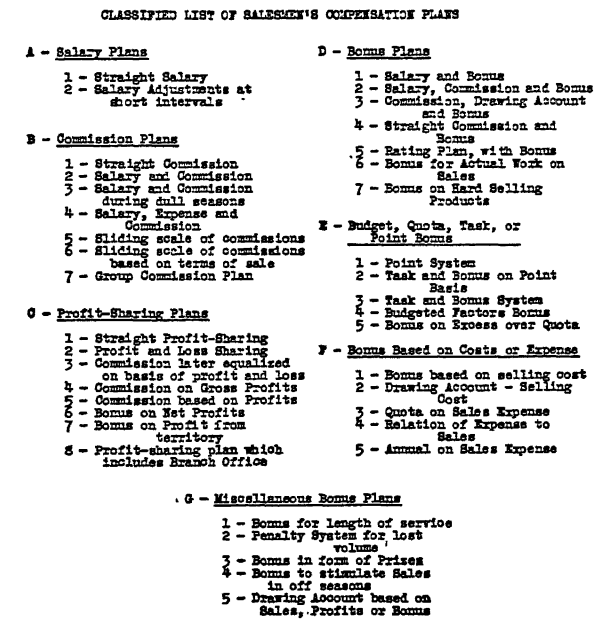


FIGURE 38

particular business. If real sales control is to be established, salesmen's expenses should be paid by the company. The salesman should be routed by the sales management, and if he goes where he is expected to go, the Company should expect to pay the expense, which should be budgeted on an economic basis beforehand. If adequate coverage of a territory is to be maintained, the salesman cannot be expected to pay his own traveling expenses.

The third point of importance is providing the salesman with a definite income. If he gives his entire time to your affairs, he is

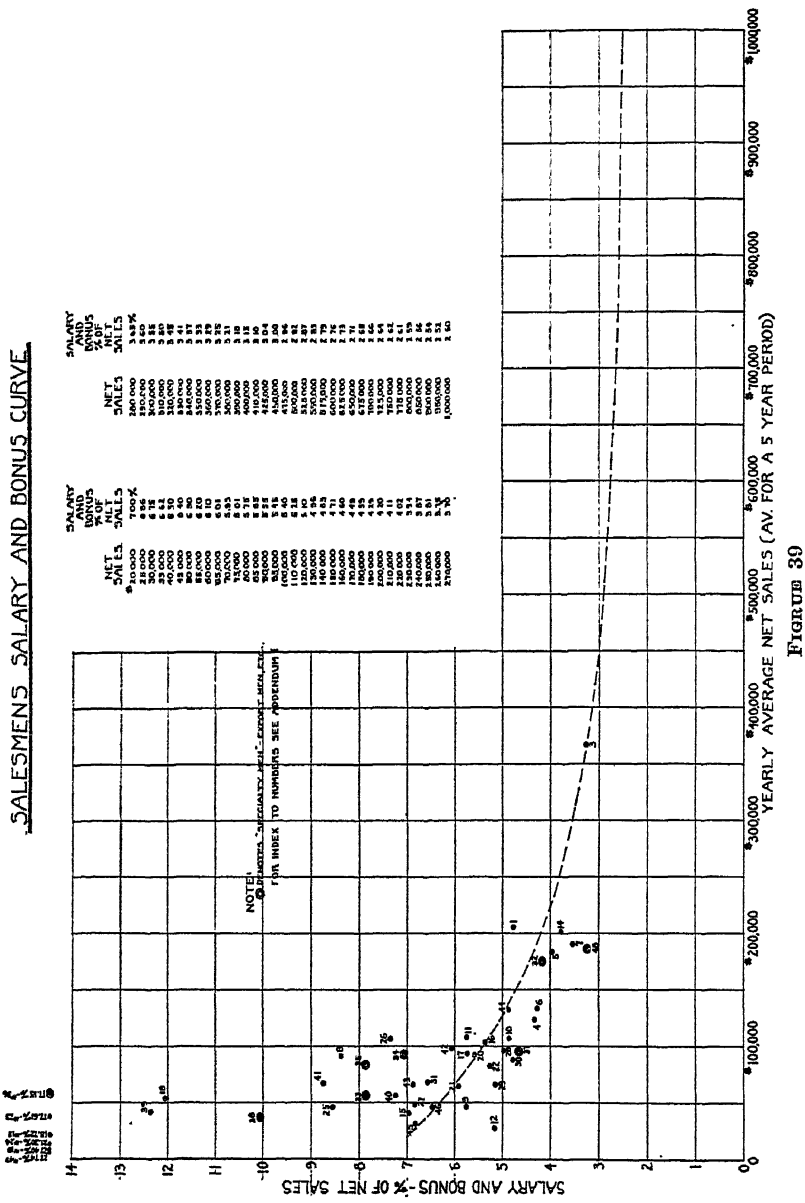

SALESMENS SALARY AND BONUS CURVE
NOTE!
FOR INDEX TO NUMBERS SEE ADDENDUM
SALARY AND BONUS - % OF NET SALES
YEARLY AVERAGE NET SALES (AV. FOR A 5 YEAR PERIOD)
$100,000
$200,000
$300,000
$400,000
$500,000
$600,000
$700,000
$800,000
$900,000
$1,000,000

FIGURE 39

entitled, as previously stated, to a certain minimum living salary, consistent with his status in society.

The fourth fundamental is that he should be given an opportunity to earn an addition to his guaranteed income in accordance with his performance of the task set.

The proper amount of base salary for a salesman is dependent entirely on the type of product being sold and the normal cost to sell in a specific territory. A hosiery salesman selling to jobbers in the past has been known to sell $3,000,000 of hosiery in a year,

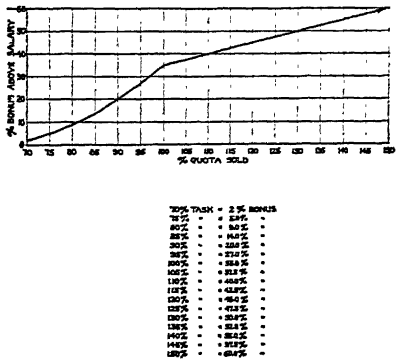


FIGURE 40

whereas if he were selling direct to the retailer he would do well to place $100,000 of business per annum.

In Figure 39 we illustrate a curve developed to determine the proper cost to sell a specialty product where the market was very variable in depth. It will be noted that in heavy areas the relation of direct selling cost to sales was only 2½%, that is, in certain areas a salesman could be expected to sell $1,000,000 in a year, and would be equitably rewarded, considering the depth of the market, if paid 2½% of this amount, or $25,000. On the other hand, in thinner markets he could not be expected to sell over $100,000 in the same period, and must receive 5½% for this accomplishment. It is obvious, naturally, that a much higher type man would have to be used in the areas of thick coverage.

In addition to the determination of the total necessary income for the salesman, it has been found necessary to reserve 25% to 33 1/3% of the total income for payment in proportion to the accomplishment of the standard required. The standard require-

ment, or task, may be based purely on volume, or a combination of sales volume and profitability (where the salesman can control profitability), or it may be a combination of sales volume divided between repeat business and new customer business, etc.

In Figure 40 we show a type of bonus curve which has been applied for rewarding salesmen for accomplishment of a specific

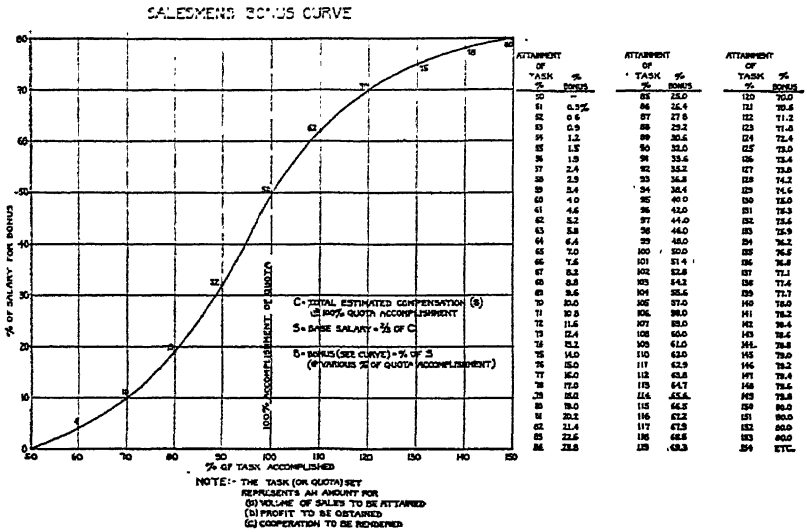


FIGURE 41

task. This form of bonus curve is applied in those cases where the quota may be fixed with a considerable degree of definiteness.

Where external conditions are extremely variable and uncontrollable, a type of bonus curve such as shown in Figure 41 can be used, which compensates for possible incorrect setting of standards.

In Figure 42 is shown the effect of varying accomplishments of the task and the manner in which the curve compensates for inaccuracies in setting the task in the first place. For instance, the proper quota for the salesman in this case would be $90,000 per year, and his proper compensation $5,040. If the standard were set 50% low (which would be a very large error) he would still earn $4,392, and his selling cost would only be increased from 5.6% to 6.1%. If an error of setting too large a quota existed, his earnings would not be seriously affected, and selling cost would be even more economic.

TEST OF "COMPENSATION" AND "BONUS" CURVES

alesman actually sells $90,000. in a year (net) -

If quotas were set at various amounts (see column 1) his total income varies (see column 7)

1. Quota	2. % Accomplishment	3. Allowable % Selling Expense	4. Salary (Base)	5. % for Bonus	6. Bonus	7. Total Income	8. % Selling Expense
60,000	150	6.1	$2,440	80	$1,952	$4,392	4.9
75,000	120	5.8	2,900	70	2,030	4,930	5.5
90,000	100	5.6	3,360	50	1,680	5,040*	5.6
105,000	86	5.35	3,744	27	1,011	4,755	5.3
120,000	75	5.1	4,080	14	571	4,651	5.2
135,000	67	4.9	4,410	8	353	4,763	5.3
180,000	50	4.35	5,220			5,220	5.8

next highest at 100% accomplishment

FIGURE 42

Such a method of controlling salesmen's compensation satisfies the fundamentals of incentive setting.

1. It gives the salesman a definitely known task.
2. It gives him a definite guaranteed income.
3. It offers him a sufficient incentive to put forth his best efforts.
4. It allows his results to be definitely measured in percentage, an excellent gauge for determining effectuality.
5. It maintains direct selling expense within the proper economic range.

It has been our experience that it also satisfies the salesman and results in the creation of a wide-awake, aggressive sales force.

Pricing

It is evident, by referring to the Profit Assurance Chart described earlier in this paper, that price must be considered as well as volume in units and the various expenses, if the proper profit margin is to be maintained. It used to be that prices could be set more or less definitely from the cost sheets. Nowadays, it is becoming more and more evident that the price is the "least you

can get for the most you can give". A right price is one which does not impede the movement of goods from the producer to the consumer. Too low a price hinders the flow of goods, because the producer goes into bankruptcy. Too high a price hinders the movement, because the competitor gets the business, or a competing product supplants your product. An adequate price policy cannot be established without a detailed knowledge of the market and what can be sold, nor without a detailed knowledge of the cost to sell, both by products and by territories. The result of the sales forecasting and budgetary controls previously detailed should enable the manufacturer to determine adequate price policies.

The whole problem as it applies to any business is whether a drop in price will bring the product within the reach of people who have not previously been purchasing, or will tap a market which has been previously supplied by similar products. If a drop of price does neither of these, it results in only a temporary spurt in business, with corresponding loss of profit.

Oftentimes, reaching a new stratum of buyers results in a loss of practically all the old customers. The price of goods sold for industrial purposes, that is, to other manufacturers, does not affect the volume so markedly as in other classes, but is beginning to increase this effect even in this field. When prices are low, the demand limited, and the market well defined, a reduction in price usually will not increase sales. A good example of this is bathing suits.

In the consideration of the desirability of reducing price, the sales research and cost data should permit answering the following questions:

What will be the effect on:

1. Sales volume?
    a. Increased consumption due to reaching a new stratum of the market?
    b. Effect of competitor antagonism?
    c. Gain in sales temporary or semi-permanent?
2. Profit position?
    a. Increased sales needed to maintain?
        (a) Total profit?
        (b) Per cent profit?

b. How much loss in volume can be sustained under present price before loss becomes greater than that resulting from a cut in price?

3. Absorption of manufacturing overhead?

a. Determination of stop loss point?

Conclusion

It is evident that executives throughout the country are becoming conscious of the necessity of organizing sales departments for greater profit. Fundamentally, such organization should be based upon what the business can economically afford, as determined by the establishment of a sales forecast and a carefully prepared budget, which provides for a fair profit or service charge based upon the total capital employed in the business venture. In addition, sales research and cost departments should be so organized that their statistics and computations can be properly interpreted for the executive.

In spite of the accomplishments of the past we feel that the surface of this great work only has been scratched, and the next two or three decades will witness a rapid development in the establishment of sales standards and profit control.

CHAIRMAN JORDAN: Before going on with the discussion of Mr. Willard's paper, we will hear from another speaker. I want to do this so you can combine the discussion. I want to introduce to you Mr. Greer, who is Director of Accounting, Institute of American Meat Packers.

STANDARDS FOR SELLING ACTIVITIES IN A MEAT PACKING COMPANY

HOWARD C. GREER, C.P.A.

Director of Accounting, Institute of American Meat Packers
Chicago, Illinois

THE preceding speaker has set forth very ably the important fundamental principles to be observed in developing standards for selling activities. In this coordinated program it is

my function to present a specific instance of how such standards have been developed in a business with which I am familiar—the manufacturing and wholesaling of meat products.

I recognize that few of you here today are interested in the meat packing business as such, and I therefore urge that you regard what I have to say here not as relating solely to that business, but rather as suggestive of the possibilities for similar work in other comparable industries. The setting of sales standards is a particularly difficult task in a business like that of meat packing, and it seems to me encouraging, therefore, from the viewpoint of standards in general, that it has been possible to work out some acceptable bases for measurement and control of selling activities in some of the companies in this industry.

You will understand, I hope, that I am not pretending to present any infallible method or hard-and-fast procedure, but merely expect to tell you what our difficulties and problems were in a specific case and how we went about it to solve them.

There are four things which I should like to emphasize particularly in this connection. The first of these, as I have already suggested, is that a standard of some sort can be found for the selling activities of practically every concern. The basis of that standard may not be sales in dollars or sales in physical units of volume; it may be only indirectly related to sales. But if you will examine your business I think you will find that no matter what are its peculiarities there is some factor which you can use as a basis for measuring and controlling your selling activities; some essential feature which will serve as a standard for the guidance of your executives.

The second point of importance in this discussion is that the purpose for which you are setting those standards must be clear. It is of no avail to set up standards and to analyze and compare results with these standards, unless you have clearly in mind what they are for and what you are attempting to do through their use. Many companies have set up accounting analyses because they thought it was the thing to do, and not because they had a definite conception of how they could be helped by the results. A specific purpose must underlie every plan for establishing standards if the plan is to justify itself.

The third point I want to emphasize is the importance of the psychology of the men who are to use these standards. If standards

are to be set as aids to the guidance and control of your enterprise you will do well to attack this problem not as a cost problem nor as an accounting problem, but as a problem in psychology. How can we establish a set of standards which will appeal to the people who are going to use them, so that they will take hold of them and make them a part and parcel of the efforts they are putting forth in behalf of the business? That question must be always in the front of our minds.

The fourth, and I think the most important point, is to recognize that when we tackle this problem we must work with and from an existing set of conditions, and not from the hypothetical basis of an ideal business or a perfect organization. We are not starting from scratch, or beginning in the clear. We are beginning, usually, with an existing organization, made up of a certain number of ordinary, human individuals, with a certain background of experience, and the established habit of doing business in a certain way, and we have got to frame a plan which will fit those people and their circumstances, rather than imaginary people and ideal conditions.

I am reminded of a story you may have heard Mr. Kettering tell. On a motor trip down in Tennessee he got off the highroad and lost his way. Meeting a man who looked like a native he stopped and inquired as to the best route to Cincinnati. The native scratched his head and said, "Well, you go ahead on this road for quite a piece, you pass a cross road,—no, two cross roads,—and at the third cross road you turn to your left and jog back about five miles—that's a bad road, too—and then—well, now listen—to tell you the truth, if I was going to Cincinnati I wouldn't start from here!"

That is exactly the situation most of us are faced with when we try to begin to set standards in an enterprise. If we had our own way, "we wouldn't start from here", but unfortunately there is no other place to start.

I have been consulting recently with the chief executive of one of the meat packing companies with regard to the setting of sales standards in his concern. He has been making a study of his business, and has decided that the profits are inadequate. Most business men think that about their profits. This executive, however, has gone further; he has examined the different parts of the business to determine why the profits do not come up to what he considers a reasonable figure.

In this study he first went into the question of his product. He concluded that the product was above the average in quality and was as good as he could expect to turn out. He examined the question of his buying policies and manufacturing methods. He determined that the buying was being done well, and the manufacturing efficiently and economically. He consulted his records as to whether his plant was being operated at satisfactory capacity, and he found that it was.

What was the answer? He was selling enough, the cost was on a reasonable basis, the quality was good, but sufficient profit was not being realized. Evidently it was a question of selling prices. The sales department was realizing too little from its efforts. The problem was one of having the salesmen go out and get better prices for the same quantity and quality of product they were then selling, or of selling at a lower cost of distribution.

That sounds easy. Simply set the prices to be charged and tell the men to sell at those prices. But that isn't quite as simple as it sounds. This company had been drawing up a price list each week, telling the salesmen what they ought to get, but they weren't realizing those prices.

Let me digress a bit and tell you why it isn't possible to set fixed prices in the meat business and adhere to them indefinitely without variation. In the first place, there are wide fluctuations in supply and in demand, which cause prices to rise and fall, sometimes very rapidly. The meat packer can sell only the products of whatever livestock comes to market. If the farmer decides to raise more hogs, there will be more pork; and there isn't anything the packer can do about it. If fewer hogs come to market, the pork supply drops off; and there is no way to increase it except as higher prices stimulate greater hog production for the next season. Demand also fluctuates, seasonably and otherwise.

Secondly, the product is perishable; it must be sold. You can't hold it long. If the packer doesn't like the price that prevails, he must sell his goods at that price anyhow, or have them spoil on his hands.

Furthermore, there is considerable variation in the quality and grade of the products. No two animals are just alike, and the meat products from the livestock are not identical, either. This leads to differences in price in supposedly uniform products. Prices become a matter of opinion, of temporary conditions, and

of bargaining. Thus the packinghouse salesman has become accustomed to having some leeway on his quoted selling prices, and to making what seems the best possible trade to move his product.

I mention these things because they indicate the difficulties which confront the packinghouse executive or accountant when he undertakes to set up standards for measuring and controlling the operations of his sales force. Sales volume is not a measure of accomplishment, and price alone is not a conclusive indicator of performance. There are a good many factors to consider.

The first suggestion made by the executive was that we issue a hard and fast price list and say to the salesforce: "You must sell at this price; you will have to get it; we may be compelled to change the list every day, but you will have to sell at the list price, and we won't accept an order at any other figure." But this question of psychology got in our way. These salesmen have been "traders" as well as salesmen—many of them for years. What would happen if we suddenly forced on them a new way of selling? They would find it hard to adjust themselves. Some less radical departure from existing practice seemed preferable.

The second suggestion was that we should make an analysis which would show the average price realized by each salesman on each product sold and then compare that average with the price which had been set for him. The management turned that proposal down. It was too difficult to weight the different factors properly, and too complicated and detailed in execution to be practical. So we said to one another as we discussed the subject: "What is there in this business that we can reduce to a standard? What is there that we can set down as a requirement of the salesmen, something to which we can hold them? What, in effect, are we really trying to get them to do?"

After some further thought and study we came to this conclusion. What we expect from the packinghouse salesmen is the realization of a certain gross margin of profit. We don't judge him by volume alone, or by price alone, or even by volume times price, but on the relation between his aggregate sales and the cost of the goods he sells. That must be satisfactory, and if it is we don't inquire too closely into other features of his accomplishments.

There exists in the market at any given time a fairly stable price relationship between the wholesale cost of packinghouse raw material and the price at which the finished product is sold. If

the price of cattle goes up, beef goes up. If pork trimmings go down in price, the price of sausage is reduced. Both materials and product fluctuate, but they increase or decrease in about the same proportion, under ordinary conditions.

We decided, therefore, to figure each period the cost of each product, by taking the current cost of the materials we were buying and adding to it fixed or standard amount of manufacturing expense, a sort of standard cost. Then we could expect our sales department to get a margin over and above that cost, and this margin should be reasonably constant at all times and under all conditions. The volume might vary; the price at which goods were sold might vary; occasionally something would occur to interfere with that margin; but in general we could reasonably require the salesman to turn in a certain amount of margin each week, and we could set a standard for him as that basis. So we began to build our quotas in that way, a "margin quota" for each salesman.

The next question that arose was, "Shall we tell the salesman how much profit is being realized on each sale he is making, how much gross profit is being taken in? If we do, he may get weak-kneed on his prices, thinking he has a big margin to work on and overlooking the fact that a heavy selling expense must come out of that margin."

It didn't seem to be necessary that he know the amount of the margin; all we wanted him to know, and all he needed to know, was whether he was meeting the standard set for him. In other words, we could tell him each week what per cent of the standard he had made. We could start him in with this assurance; that if he sold a normal volume of stuff and got the sales-list price for it, he would realize his margin standard; also, that every time he shaded a price he was cutting into that margin. He would know himself whether he was coming up to his quota or not.

How did we set the quotas? It might seem reasonable to set the same quota for all the men, but when we began investigating their territories we found that a uniform standard wouldn't do at all. The territories were different. Some were good; some were very poor. We might give a man a difficult territory to work, one in which there was little demand for our particular class and grade of products; the stores might be bad and competition exceedingly heavy,—and competition in the packing industry is ex-

ceedingly keen from top to bottom and all the way along. We might notice in passing that in respect to competition it is to be distinguished sharply from a business like the one Mr. Allyn discussed this morning, and the methods must differ accordingly.

We began to take off some of these margin figures, as they were actually running at the time. There were astonishing variations. Some men produced as little as $150 margin per week; one man turned in over $900. This latter was a "freak" figure; there weren't many approaching it, but the common instances were all the way from $150 to $300.

How to set up a fair standard for each man! Well, we started at it in the most unscientific way I know. We simply adopted a sort of "trial and error" method, to see how we would come out. We said: "This plant ought to earn a gross profit of $20,000 a week." Then we said to the sales manager: "You go over these routes and assign a quota to each man such that the total will come to $20,000 a week."

So he did that. He first set down what he thought each man could do. At his first trial he came out with a total of about $18,000. We told him that wasn't enough, and he had to go back and find another $2,000. As I say, it wasn't very scientific, but it was thoroughly satisfactory from the standpoint of getting the sales manager to analyze his job and set up for himself and his men some kind of a mark to shoot at.

We think we can do the job better with more time and better analysis. We are going to take our best territories and study the class of trade which the salesmen on those routes have worked up. We are going to study the kind of stores, the class of business to which they cater, the volume of different kinds of goods which they sell, and then we are going to measure the performance of these salesmen on that basis. Next, we are going into other territories and say, "What could a good salesman do in territory No. 46, if he realized the same proportion of his apparent market as our star salesman No. 1, or any one of our first ten salesmen?" By that means, by studying the stores, their size, class, and grade, the kind of commodities they handle, and other factors, we think we can arrive at some fair measure of the potential value of those territories.

Of course, the puzzling and uncertain factor in the situation is the caliber of the individual men on our present sales force.

They are not all equally capable; some are good, some probably poorer than we realize. The problem confronting us—and everyone faces the same kind of a problem—is in trying to keep our evaluation of the territory clear of our evaluation of the salesman who is now working in that territory.

We are bound to be influenced in judging the territory by the kind of man we have on the job now. This salesman whose quota we set at $900 a week is a cracker-jack salesman. He has been with the concern a long time and has a good territory, built up by his years of effort, and he is a topnotch man. When he goes away on his vacation and we put a substitute man on that territory, the margin will drop to as low as $500. So it is not all a question of the territory. The man on the job has a lot to do with it. Moreover, even when we know that some of these men are weak, we can't fire them all out of hand. The next crop may be no better. We must make a start at least with the existing situation, like Mr. Kettering on his way to Cincinnati.

I am not prepared to give any final solution for that phase of the problem. We shall have to compromise to some extent. I think we shall arrive finally at some sort of quota which gives principal weight to the character of the territory and some lesser weight to the character of the man we can get for that territory; not necessarily the man on it now but the kind of a man we can afford or think we can afford to put into that territory.

We don't think a margin quota alone will be sufficient as a standard. We are afraid some of these salesmen may take only their customers who will pay the biggest price and work only to sell them the highest margin goods, to the exclusion of low margin lines which are necessary to our business. If the plant volume falls off we are faced with increasing overhead. So we propose to set up a tonnage quota also. That is a secondary affair, not the primary standard—but if a man runs one hundred and ten per cent on margin and falls badly below one hundred on tonnage, we shall penalize him to some extent on the extra compensation which will normally go with super-standard margin performance.

We are also expecting to set expense quotas, and if time permitted I should like to discuss that phase of the task with you, but I can do no more now than refer to it as a feature of the program. The plan involves some new methods of costing sales; determination of the factor which causes variation in each type

of expense, such as weight, distance, number of orders, number of items, number of salesmen's calls, etc.; finding out how much it costs to pack an order of one hundred pounds, two hundred pounds, and so forth; what a unit delivery costs; how much it costs to run a sales order through the accounting department; and so on.

With these three measures—margin, tonnage, and expense—we think we shall have a very good check on the productivity and value of each man and each territory. A man will be judged primarily on the basis of his achieved percentage of the margin set; secondarily on his tonnage and his expense. The factors will serve as a check against the primary basis on which we are going to evaluate his efforts.

In conclusion let me refer again to the four points I attempted to emphasize at the beginning of this talk. In the first place, we were able to find for this concern a basis of measurement which has proved both effective and convenient, in spite of the fact that some of the more common measures used for setting standards were not applicable. Secondly, we kept constantly in mind the purpose for which the standards are created—to gauge selling activities on the basis of their effectiveness in contributing gross profit to the enterprise. Thirdly, we worked out the plan with constant attention to the psychology of the people involved, and developed those measures which we thought were most likely to produce the desired reaction on their part. Finally, we accepted the existing situation as a starting point and outlined methods which could be fitted to an actual going organization, rather than those suitable for a hypothetical but non-existent business enterprise.

It is interesting to note the reaction of the people in the concern, and the reasons underlying their satisfaction with the plan. I might say that if they were not satisfied with it we would consider that we had not done a good job in formulating it originally. Everyone concerned has had a part in developing the methods to be used. Each individual understands the purpose of the arrangements, and joins in our reliance on the plan as a means of putting the enterprise on a sounder basis.

The individual salesman believes that he is being given a fair mark to shoot at. He has had explained to him that he must sell a reasonable volume of meat, at the prices given him in his price

list, in order to reach the gross margin standard for his route. If he does better than this he will receive additional compensation; if he falls below the standard he will not be penalized, except that he may know to his own satisfaction that he is not in line for promotion or advancement so long as he falls short of the reasonable expectation for his territory. He has no complicated calculations to perplex himself with, and no opportunity to question the basis on which either his standard margin or his performance are figured. He knows that it is not intended to discriminate against him, and when he sees from the weekly list that some salesmen are exceeding their standard and thus earning additional compensation he can be sure that he has only to increase the effectiveness of his own efforts to bring himself into that same class.

The sales manager is the strongest advocate of the plan. Since it has been in operation he has stated that now for the first time the accounting department is giving him some figures on which he can quickly and intelligently appraise the performance of his salesmen. He has justly felt in the past that criticisms of certain of his men were not well founded, and he welcomes the development of a standard which will insure the equitable distribution of credit and blame among members of his force.

The chief executive of the company is thoroughly sold on the idea. He said at the conclusion of our preliminary discussions of the subject: "You accountants must come to realize that the chief executive cannot and will not attempt to assimilate a mass of figures from various accounting records, set before him in a huge table, divided by items, by commodities, by territories, and so on. He wants something he can put his finger on; something he can grasp at once; the concentrated essence of the story—the final guide to definite action. He wants the accountant to go through the mental gymnastics necessary to reach the conclusion, and he refuses to go through them himself. He wants to know, not what the figures are, but what they mean, and what ought to be done about it. The figure I want here is the *per cent of standard margin realized.* That's all I need to know about our selling activities to determine whether they are serving their purpose."

That last thought is particularly well worth bearing in mind. As accountants we must get beyond the idea that accounting work is an end in itself—a sort of fine art which may be practiced merely for the satisfaction which an artist takes in a good piece of work.

We must realize that accounting is no more than a means to an end, and that the end is not accomplished until we have made it possible for operating executives to use the results of our labors, and to use them intelligently, promptly, and easily.

CHAIRMAN JORDAN: I wonder if you will forgive me if, before we start discussion on these papers, I would attempt to contribute a little myself out of a very small fund of information, I'll admit, on this matter of setting standards.

First of all, I think Mr. Greer, when he said they did the worst possible thing when they went to the field men to set quotas, really did the best possible thing. I think it is a pretty general experience that quotas set up by the field men themselves are set a great deal harder than anything handed up to them and served out in a mechanical method. Personally I think it is a very good method to follow, a real incentive method, because of the psychology involved and because it gets every one in the field interested to accomplish just what they set out to do.

On the other hand, the market research work will then come in to bolster that up, to check it, to help along in the knowledge, to check the men in the field in their own knowledge and own desire and will piece out and correct and maintain a better knowledge as to what the quota should be.

While we have had a very admirable presentation of the factors which must be taken into consideration in setting quotas for sales, I do not think we have gone quite far enough yet—without any criticism whatever, you understand. This is an enormous subject and every bit of this ground work is absolutely important but the point in my mind is, and I would like to have it answered by some of you in discussion, how to go at it to set these standards.

I just want to contribute a certain thought based on the continuity of our work in this convention and also based on what is being done in more than one company I know of. I believe it is something that will apply in any company whatever. We study the general economic conditions. Yes, they must be studied. We study all of these other factors. Yes, they must be studied, but how are we going at it to set these standards in a direct and definite way?

Let's just consider this. We have our organization set up;

we have our records set up. You will notice Mr. Allyn and Mr. Lowles, in answer to questions, in direct statement said that the records were there to show the sales and the profits and the expenses by lines of product, also by territories, and it is easy enough to get the gross profits on those sales and the individual expenses by men. So, you have territories, men and products in the set-up of records which we have had described to us.

All right, now, we may have a limited line, as both of these men were talking about today. Their line is more or less limited, or it may be a very wide line, but the wider the line the greater the necessity of knowing the profits, the gross profits, by groups of products, by lines, and therefore we must have that, no matter what the business is.

In a paint business where you will have fourteen hundred different articles in one line of paint you must have them grouped under certain groups in order to know whether each line or each group is paying. In any line of work whatever, I don't care what it is, any industry manufacturing a very diversified line, I don't believe there is one industry with a large line that hasn't its products grouped in certain groups, and the controlling factor of the groups being either the sales field or the nature of product. If we have our standard costs or any other kind of costs we know what the gross profit is in each group. Now we have a bunch of salesmen. We may have specialized salesmen selling only within one group or we may have a type of salesman who sells all the groups.

The next problem we have is the psychology of the salesman where he is liable to go out and sell something easy to sell, naturally, to get his dollars of sale. All right, we want to get away from setting the budget just on dollars alone, because the stuff that is easy to sell will be what is sold. But there's something else we can do. In setting any kind of a control quota, particularly as we approach the question of incentives, which we will take up tomorrow morning, if we get into that from the stand-point of key men and executive incentives we will touch the sales department, of course. We have to prepare that basis this afternoon. We have to get that lined up.

I want to put forward this one thought and you can develop it by discussion if it is at all interesting. We have gotten to where we have studied economic conditions. We have studied what Mr.

Greer has talked about of these various problems. We have our records and know our gross profits. So let's do this. Let's take a line that shows an average gross profit of twenty-seven to thirty per cent—use that as an illustration—and we will assign ten points per $1,000 of sales for a gross profit of twenty-seven or twenty-seven and a half to thirty per cent. For a gross profit of twenty-five to twenty-seven and a half we will assign nine points credit. For a gross profit of from twenty-two and a half to twenty-five we will assign a credit of eight points per thousand dollars of sales, and so on down until we reach, say five points.

You will notice there you bring in the profitableness of the articles sold. That may be by articles, where it is in many businesses, where you have only twenty-five or thirty items or it may be by lines where you may have fifty lines with five articles in each line—it makes no difference, nor does it make any difference what you are making or what your business is—not in the slightest. You know from your records what these gross lines are.

I don't say that ratio of points is exactly right, but I want to give you that point. If we assign that number of points to be credited to the sales department in each of those lines, that is all right, so far as ratio of credit to profit is concerned, but we have something else we would like to "kill" at one time. We still have the expense of selling. In that we have two problems that confront us.

Is a selling department, a branch sales office, we'll say, a matter of individual selling by men, and can we budget the men themselves, which we can do with a cash register and business machines? Yes, because there they are given three city blocks, and nobody else gets in there. But that is not possible with many lines of work. We have lines of work where we run into a problem prevalent with every sales department. Let me describe that for a moment.

Twenty years ago a business started up and Bill Jones went to New York City to represent that business. He was a young man at that time; he was ambitious at that time and sold all the traffic could bear. The business in New York City grew and Bill Jones needed some help so he got a young man to help him to do missionary work around, to make courtesy calls, because he himself was quite busy closing the larger business. The young man would close out smaller business and help. He worked as an assistant, a runner-up.

That same thing will keep on and finally Bill Jones gets the title of branch manager and is no more that than my fourteen year old boy from the point of managing. He is nothing but a star salesman and during that twenty years the whole crew has been tuned to play up to Bill Jones, the star salesman. He will still keep his "mitts" on the big contracts. A true manager is one who will turn the jobs over to the salesmen and play the lines to build the men. But it is like hunting for a needle in a haystack in a great many lines to find branch managers who have come up through the selling field who are real managers. They have come up only as the star salesman and in recognition of that fact are made branch managers, when they really aren't at all. They are only star salesmen.

That is the second type of selling problem I am speaking of where it is a matter of team work. You can't break that up. So many businesses are built on that basis. In other words there may be ten men in the branch sales office and the whole ten are playing up to one another while the so-called branch manager holds on to the big contracts. A salesman is like a barber; he wants to hold on to his customers. That's his stock in trade. We must recognize that and so there are two ways of looking at that next step.

One is to treat that branch office as a team and the other is to attempt to break it down, to assign individual quotas to each salesman. In a great many businesses that is impossible, and in those businesses negotiating sales where there is an element of three, four, or five working on different angles of the same sale, is very difficult. But that needn't stop you for a moment.

If we will carry our example to the team work, we know from our records what the expense of selling is in that branch. All right, we know that and from that we can set it for that gang and if it is possible for you to do so you can break that down to the individual men with their traveling expenses and salaries. If you can break it down, the Lord help you do it. You know the expense for the branch. Now what is missing? We are missing the quota for that. Along come the economic studies which we have heard this afternoon and which must be made, and whoever is making or checking those quotas must have that in mind, but greater than all that, is the enthusiasm and push and pep within that organization, that, excepting in some few lines, they won't let economic

conditions stop them from setting a quota of progress in that particular branch, or in any branch.

The great basic principle of setting quotas is knowledge of what has been sold in that geographical division, or by that individual. On the basis of making a certain allowance of the expected natural growth, governing the allowance through population, and setting beyond that the addition for salesmen or groups, and then, basing on the expectation in these different lines of work from past records, set what reasonably may be expected—letting the branch men set it first and then editing it afterwards as to the number of points that may be expected. Do it by groups first, if you please. You can't always hold to those groups. It may shift during the year. But in any event, set, say, two thousand points as the quota of that office. The standard expense for the group will be a certain number of dollars. Divide that standard quota of points into the standard expense and you have an expense allowance per point. Then the business goes on merrily through the year. They may sell more in one group than in another, but you will notice in the higher profit group they get a greater credit in points per thousand dollars. There is an incentive there which we will cover when we get into the session on incentives, but this is all quota yet, and setting standards. This is incentive to sell the higher credit group which will make the most money for us, but if it is half as much work to sell something and get the same number of points, they are always looking for the high credits. Reduce their sales by groups to the credit of points for each group, find the total for the month, multiply it by the standard expense cost per point, and it gives you an expense allowance that they are allowed for selling.

That is, take the standard set—you know their actual expense from the records. Deduct that or compute it with the standard expense and if they have gone after their business hard you have a difference and that difference should be in favor of the men. In other words, if they have whooped their sales up, if they have reached and beaten their standard, the allowance will go up because you give them the credit on the amount sold at the cost per unit in the budget. Give them one-third of the difference which is called savings; give, possibly the higher up executives, the intermediates before you get to the chief executives, another third, or something like that, and keep a third for the company,

and you have completed a picture of setting a standard of control which brings in profits over expense.

All this work is absolutely necessary, of studying the future, of studying how sales are forecasted, as they are doing in the meat packing industry.

All this is anticipating the incentive point but we have so much to cover that it won't do any harm at all. That comes in the setting of standards and how it can be done, and successfully done, in a great many sales departments.

On account of the fact that Mr. Kingsbury's paper will also be on the subject of setting standards, the principles that underlie that, and the analysis, being the same as in preceding papers, I think it would be better to have the discussion on all three papers at one time. So I will now without further ado have the pleasure of introducing Mr. Kingsbury, Controller of the American Rolling Mill Company, Middletown, Ohio.

MANUFACTURING BUDGETS AND STANDARDS

C. L. KINGSBURY

Controller, The American Rolling Mill Company, Middletown, Ohio

RATHER than attempt to present this subject as a text on how to tie in Standard Cost and Manufacturing budgets I have prepared exhibits outlining one method, applying this to a hypothetical manufacturing company. I have taken the finishing department of this business to show the procedure involved in the standard cost system applying to this department where inventories are carried at standard. This department was taken rather than one of the initial departments so that we can take the step direct from the cost of finished product at standard to manufacturing budget for the same period.

The budget, as we use it in our Company, is the final yard stick by which we gauge the operation of the manufacturing unit involved. We use this as a method of analyzing the variation of the operations of the business. The standard cost part involves only the manufacturing departments; the budget involves the combined problem of management and manufacturing and distribution. Through budgetary control, we work out the managerial problem of balancing capacity and distribution. The sales depart-

ment plan their distribution program with a knowledge of productive capacity and the manufacturing department plan the installation and operation of equipment so as to produce items for which there exists a profitable market.

You may note that, in some cases, figures on the exhibits do not tie in, i. e., multiplying the quantity by the unit price does not give the amount in dollars shown. This is true because we do not carry out our unit prices to enough decimals to come to the dollars. In working this up, we set the quantity and amount first and from these determined our unit price.

Statement of Cost—Finishing Department

(Figures 43-44-45-46)

These exhibits show by sections the layout of Statement of Cost for the Finishing Department of the X. Y. Z. Company. Each exhibit represents a sub-section of the cost sheet. You will note

THE X Y Z COMPANY

STATEMENT OF COSTS

FINISHING DEPARTMENT—LABOR

Items of Expense	Actual Cost		Standard Cost	
	Amount	Per Unit	Amount	Per Unit
Salaries	$ 1,500		$ 1,500	
Direct Labor	27,450		28,110	
Indirect Labor	5,160		5,001	
Total Labor	$34,110	$3.26	$34,611	$3.32

Figure 43

that we show in parallel columns, actual cost for the month under consideration and the standard cost applying to operations for that month.

With a few exceptions, our standards are set on the basis of "time". To make this a little more specific, our standard shown

THE X Y Z COMPANY

STATEMENT OF COSTS

FINISHING DEPARTMENT—REPAIRS AND SUPPLIES

Items of Expense	Actual Cost		Standard Cost	
	Amount	Per Unit	Amount	Per Unit
Repairs Mechanical	$12,140		$10,506	
Repairs Electrical	3,416		4,500	
Total Repairs	15,556	$1.49	15,006	$1.44
Supplies	1,240		2,200	
Small Tools, Etc.	815		750	
Power	13,120		12,920	
Fuel	8,770		9,150	
Total Supplies, Etc.	23,945	2.29	25,020	2.40
Total Supplies and Repairs	$39,501	$3.78	$40,026	$3.84

Figure 44

THE X Y Z COMPANY

STATEMENT OF COSTS

FINISHING DEPARTMENT—MATERIAL LOSS

Items of Expense	Actual Cost		Standard Cost	
	Amount	Per Unit	Amount	Per Unit
Material Loss—Scrap	$4,120		$3,343	
Material Loss Unaccounted For	1,370		1,140	
Total Material Loss	$5,490	$0.54	$4,483	$0.43

The scrap loss represents the prime value of scrap less the credit at its reclaimed value. The unaccounted loss represents the prime value.

Figure 45

in Figure 43 for Direct Labor is arrived at by multiplying the number of operating hours by the standard hourly labor cost. To set the standard hourly labor cost for direct labor, we determine the standard number of direct men in the various positions and amount paid such labor, converting this into terms of cost per hour. The first items of Figure 43—Salaries, is one in which the amount is fixed, i.e., the standard is set at the actual total salaries for the department and remains at this fixed amount from month to month irrespective of hours actually operated.

THE X Y Z COMPANY

STATEMENT OF COST

FINISHING DEPARTMENT—PROPORTION CHARGES

Items of Expense	Actual Cost		Standard Cost	
	Amount	Per Unit	Amount	Per Unit
Proportion of Wks. Gen'l Exp...	$ 725		$ 912	
Proportion of Depreciation.....	460		440	
Proportion of Taxes.....	230		230	
Proportion of Insurance.....	190		190	
Total Proportion Charges...	$1,605	$0.16	$1,772	$0.17

Figure 46

All items of repairs, supplies and power shown on Figure 44 have standards set on the "time" basis. The unit cost shown is determined in the usual way by dividing the number of actual units produced (shown on Figure 49) into the dollars of expense, both actual and standard.

In our practice, material loss is an item of conversion cost. This, I believe is a departure from usual practice. Material loss shown here as expense is the difference between the value of the material and its value as reclaimed or scrap. "Unaccounted for Material Loss" is a total loss, there being no reclaimable value. In setting this material loss standard we determine what the material loss should be by each item of product.

Standard loss for material shown here then is determined by

applying standard set for material loss on the three items of product, A. B. and C (see Figure 50).

The standard for overhead and proportioned charges is set on the "time" basis and "fixed" basis depending upon the nature of the expense. These items which should vary with the time of operations are set on a "time" basis and those which remain constant irrespective of the time of operation are set at fixed standards.

Recapitulation—Statement of Cost—Finishing Department (Figure 47)

There is shown here, summarization of the sections of the Statement of Costs added, to give the Total Conversion Cost. You will note that the standard for total conversion cost is slightly higher than the actual conversion cost giving an over-absorbed plant balance or variation from standard of $186.00 or $.02 per unit. The material cost however, shows actual cost in excess of standard, giving as Total Finishing Department Cost, actual cost of $.09 per unit or $1,055.00 higher than standard. In our practice, we term this $1,055.00 variation from standard, "Plant Balance", so when I refer to Plant Balance at any time later in this paper you will recall that this is the variation from standard.

Our material cost standard is set by determining the standard material which should be used for a unit of each item of product. The excess of actual cost per unit over standard cost per unit indicates that there has been more material used than was allowed on standard but it does not tell you which of the items of product used this excess material. There is a factor involved in this whole question of cost per unit that we have found has to be analyzed to give a true picture. We term this factor, "mix". It is the proportion of quantity of each item of product to the total quantity and must be given consideration when comparing unit costs for one period with another. In the unit conversion cost and unit material cost is included, in this case, three products, A. B. and C (see Figure 50), each product in varying quantities and at varying conversion and material costs. The actual unit cost and standard unit cost are directly comparable for any one month in that the "mix" in both cases is the same. It is not possible how-

ever, to compare either directly for one period with another, unless the mix for both periods is the same, without converting them into a common unit. We refer to this common as "Par".

The method of determining the "Par" unit will vary with each type of industry and to some extent, within the same type of industry. "Par" unit is the item of product into which production of all other items of product are converted to give the relative

THE X Y Z COMPANY

STATEMENT OF COSTS

FINISHING DEPARTMENT—RECAPITULATION

Items of Expense	Actual Cost		Standard Cost	
	Amount	Per Unit	Amount	Per Unit
Labor	$ 34,110	$ 3.26	$ 34,611	$ 3.32
Repairs and Supplies, Etc.	39,501	3.78	40,026	3.84
Material Losses	5,490	.54	4,483	.43
Proportion Charges	1,605	.16	1,772	.17
Total Conversion Cost	$ 80,706	$ 7.74	$ 80,892	$ 7.76
Material Cost	42,420	4.06	41,179	3.95
Total Finishing Dept. Costs	$123,126	$11.80	$122,071	$11.71
Credit at Standard	$122,071	$11.71		
Variation from Standard	$ 1,055	$ .09		

Figure 47

production necessary to establish the base for comparable costs. As an example, in a rubber goods manufacturing plant, we might take as "Par" unit, a certain size automobile tire. All other rubber products made would be converted into equivalent of this "Par" unit, for cost comparison. The factor used for conversion in each case is termed "Par" factor. I do not want to take the time here to go into a theoretical discussion of this subject as it is complicated enough to require a full session to establish fundamental principles for the determination of this factor as based on the above. Before passing on however, I would like to leave

this thought with you. A suitable item of product is picked and taken as the "Par" unit so that when other items are converted into terms of this item for equivalent production there will be a physical conception of the "Par" unit. It then is necessary to determine the "Par" factor to be used for converting all other items of product in any one Department and in total for the plant. To determine "Par" production cost, the various units manufactured are each multiplied by their "Par" factor, totaled and divided into the total manufacturing cost, giving the picture of the relative cost of manufacture as established during the period.

Referring now to the plant balance of $1,055.00 or $.09 per unit. This is the starting point for analysing the actual operation of the finishing department for the month. This point balance is due to excessive material cost. The cost accountant handling this department should analyze the material cost, actual and standard, for each item of product.

One or more of the items would show an excessive raw material cost. It will be noted (referring to Figure 45) that this excess in material cost shows up in excessive material loss. Working from figures entirely, without a conception of the physical use of materials for this month, we could tell the superintendent of this department where he has gone wrong. By analysis, we could determine if this excessive loss occurred on the items for which excess material was used. From results of this study, the superintendent could correct his practice in use of material for the future so that this loss would not re-occur.

Analysis of Variations From Standard—Finishing Department (Figure 48)

This Exhibit is simply a summarization of the plant balance by sections of the cost statement. It shows that the material loss was excessive to the amount of $1,007.00 and material cost, due to quantity used, to the amount of $1,241.00. The unit cost of material is not involved as such material is carried in inventory at standard prices. Theoretically the excess material cost and the material loss would be equal except for credit given for the salvaged part of material loss. It would be perfectly correct in this case to assume that the $234.00 difference between the material cost and material loss represents the scrap credit.

THE X Y Z COMPANY

ANALYSIS OF VARIATION FROM STANDARD
FINISHING DEPARTMENT

Item of Expense	Gain	Loss
Labor	$501	
Repairs and Supplies, Etc.	525	
Material Losses		$1,007
Proportion Charges	167	
Total Conversion Cost	186	
Material Cost		1,241
Total Finishing Dept. Variation		$1,055

Figure 48

Operating Comparisons—Finishing Department (Figure 49)

We find that it is very desirable to supplement our cost statements with certain factors of operation. The practical operating man seems to guage more quickly the results of his operations for the period through the use of ratios and comparisons. If we can give him a picture of various comparisons and ratios that he can fit into his mental visualization plan which represent operating at standard, we find that he is able to use these as a control in his daily work. In our practice, we give a number of ratios such as, units produced per man hour, units produced per dollar, direct and indirect pay roll, pounds of coating material per square foot of product, equipment operating hours per unit of product, etc., not shown on Figure 49. It is necessary to set these ratios and comparisons for each department to fit their operating requirements. We determine these factors by study of the method used by the superintendent to visualize the operation of his department and make these factors the mathematical calculations involved in such visualization.

There are a few things that I want to point out specifically on this Figure 49. You will note that the productive equipment hours, actual and standard are the same, while the units produced, actual are in excess of those in standard. We work our

standards by taking productive equipment hours actually operated as a basis for applying the standards for the period. The productive equipment hours, then, determine the units which should have been produced at standard hourly production based on this time. The operation of the finishing department of the

THE X Y Z COMPANY

OPERATING COMPARISON

FINISHING DEPARTMENT

	ACTUAL	STANDARD
Total Production—Units	10,425	10,200
Productive Equipment Hours	5,142	5,142
Units Produced per Hour	2.03	1.98
Productive—Operating Efficiency	101.5%	

FIGURE 49

X. Y. Z. Company for the period shows 101.5% operating efficiency or 1.5% actual productivity over standard. From these comparisons, it would appear that the operation of the finishing department for the month was perfect. Had they used standard material, the plant balance would have shown a comfortable overabsorption against operating cost.

Distribution of Cost—Finishing Department (Figure 50)

This exhibit shows the method of distributing cost to the three items produced in the month, A, B and C with the total composite cost corresponding to that shown on the Statement of Cost. There are a number of figures shown here which are not a part of the cost distribution but are given to indicate how this statement might be prepared for a small company where too much detail would not be involved in showing departmental cost by items of product. In a company where a departmental distribution of cost would be too voluminous, the idea can be covered most sat-

isfactorily by applying the principles of "Par" units as discussed briefly in the earlier part of this paper.

You will note that the products A, B and C, were produced in varying quantities for the month. The cost distribution factor is the equipment hours required to produce each of the three products. The operating cost then is distributed directly on the basis

THE X Y Z COMPANY

DISTRIBUTION OF COST

FINISHING DEPARTMENT

Item	Product A	Product B	Product C	Total Products
Production Units.....	5,112	4,208	1,105	10,425
Equipment Hours.....	2,606	2,090	446	5,142
Operating Cost.....	$38,205	$30,551	$ 6,460	$ 75,216
Material Loss.....	2,812	2,006	672	5,490
Total Conversion Cost	$41,017	$32,557	$ 7,132	$ 80,706
Material Cost.....	$30,726	$ 9,120	$ 2,574	$ 42,420
Total Cost.....	$71,743	$41,677	$ 9,706	$123,126
Actual Unit Cost.....	$ 14.04	$ 9.91	$ 8.79	$ 11.80
Standard Unit Cost....	13.98	9.72	8.83	11.71
Variation from Standard	.06	.19	.04	.09
Variation in Dollars....	$293.00	$806.00	*$ 44.00	$1,055.00

* Indicates Saving.

Figure 50

of the equipment hours to each of the three products. Material loss is a direct distribution, i.e., material loss applying to each product is charged directly to that product. Similarly, material cost is a direct charge to each product. I want you to recall that the plant balance loss of this department for the period was caused by an excess in material used.

In the lower section of this exhibit, we show the actual unit cost by product and the standard unit cost; the difference between these two being the variation of each from standard. It will

be noted that products A and B show an actual cost in excess of standard while product C shows the reverse, a saving over standard. The total composite unit cost actual to standard however shows a loss of $.09 per unit. You see then, to get a true picture, it is necessary to go beyond the total figures and study what has happened in the case of each individual product.

Statement of Manufacturing Budget—Finishing Department (Figure 51)

We now take the step from cost to budget. You will see that the budget calls for varying production of the products A, B and C at varying unit prices for each product, giving a total budget for units to be produced at a composite unit price. As explained earlier

THE X Y Z COMPANY

STATEMENT OF MANUFACTURING BUDGET
FINISHING DEPARTMENT

Product	Budget			Actual at Standard		
	Units	Price	Amount	Units	Price	Amount
A	6,000	$12.00	$ 72,000	5,112	$13.98	$ 71,415
B	3,500	10.00	35,000	4,208	9.72	40,901
C	1,000	8.75	8,750	1,105	8.83	9,755
	10,500	$11.02	$115,750	10,425	$11.71	$122,071

% of Production Performance..... .8 Under Budget
% of Price Performance.....6.0 Over Budget

Figure 51

in this paper, while discussing the basis for standard cost, inventories are carried at standard. This will explain the right hand section of this exhibit titled "Actual at Standard". We show the actual items produced of product A, B and C, each priced at the standard unit cost as shown in Figure 50. The difference between the actual unit cost and standard unit cost amounting to $1,055.00 has been taken to Profit and Loss.

You will note that the quantity of each item produced differs from the budget set, B and C being in excess of the budget and A under the budget. The unit price, actual at standard, also differs from budget price. Item B is the only item where the actual at standard unit price is less than the budget. The budget called for operating hours in excess of the hours actually operated. The budget prices are the standard prices which would have existed had we operated the budget equipment hours. These price variations are caused entirely by the fixed items of cost such as "Salaries", where the standard is not set at a certain amount per equipment hour. This variation between unit prices has been distorted purposely to bring out this fact that there may be a difference between the budget unit price and the actual at standard unit price even when standards are applied to both.

The study of the figures exhibited bring out some interesting things. In total the production performance was only .8% under budget. The individual items however, vary considerably. Item B, where the actual units produced is considerably in excess of the budget, shows an actual at standard unit price lower than the budget unit price. On product C, more units were actually produced than called for on the Budget but the actual at standard unit price is in excess of unit budget price, indicating excessive cost due to operating overtime. The price performance however was 6.0% over budget. A detailed study of the application of standards involved in the budget as against the standards for actual would reveal some very interesting figures to show the Superintendent such as, what can be done by bringing the production of his Department to that called for on budget.

In the ordinary case there should be interposed here, a finished inventory budget. This would make the problem somewhat complicated and would unduly lengthen this paper without, I believe, giving sufficient benefit to warrant the taking of the extra time. For those familiar with handling budgets, it is not difficult to understand how such a budget would be set up for the X. Y. Z. Company. For the purpose of this paper however, we have considered that we manufacture and sell all units produced in any one period. Therefore, we do not have any finished inventory. This is an ideal condition not only from a budgetary control standpoint but from an operating standpoint possible only in a jobbing business.

Statement of Profit and Loss—Budget—Actual—Actual at Budget (Figures 52–53–54)

These exhibits are combined in this discussion in that they form the Gross Profit and Loss comparison of actual and

THE X Y Z COMPANY

STATEMENT OF PROFIT AND LOSS—BUDGET

Product	Unit	Sales		Cost		Gross Profit	
		Price	Amount	Price	Amount	Price	Amount
A	6,000	$15.00	$ 90,000	$12.00	$ 72,000	$3.00	$18,000
B	3,500	12.00	42,000	10.00	35,000	2.00	7,000
C	1,000	10.00	10,000	8.75	8,750	1.25	1,250
	10,500	$13.52	$142,000	$11.02	$115,750	$2.50	$26,250

FIGURE 52

THE X Y Z COMPANY

STATEMENT OF PROFIT AND LOSS—ACTUAL

Product	Unit	Sales		Cost		Gross Profit	
		Price	Amount	Price	Amount	Price	Amount
A	5,112	$16.00	$ 81,792	$13.98	$ 71,415	$2.02	$10,377
B	4,208	12.00	50,496	9.72	40,901	2.28	9,575
C	1,105	9.00	9,945	8.83	9,755	.17	190
	10,425	$13.64	$142,233	$11.71	$122,071	$1.93	$20,162

FIGURE 53

budget and the composite of these required to work out the analysis of why the X. Y. Z. Company did not meet its budget. Referring specifically to the first two exhibits of this section we note that we should have made a budget gross profit of $26,250.00

based on budget production of 10,500 units at $2.50 per unit. Actually we made a gross profit of $20,162.00 with a production of 10,425 units at $1.93 per unit. It is interesting to make comparison by each of the products A, B and C budget against actual, noting the difference by each item. Potentially, as shown by the budget, product A is the most profitable per unit, with product C the least profitable. Actually, due to variations in sales price and variation in cost, product B is the most profitable and product

THE X Y Z COMPANY

STATEMENT OF PROFIT AND LOSS—ACTUAL—BUDGET

Product	Unit	Sales		Cost		Gross Profit	
		Price	Amount	Price	Amount	Price	Amount
A	5,112	$15.00	$ 76,680	$12.00	$ 61,344	$3.00	$15,336
B	4,208	12.00	50,496	10.00	42,080	2.00	8,416
C	1,105	10.00	11,050	8.75	9,669	1.25	1,381
	10,425	$13.26	$138,226	$10.85	$113,093	$2.41	$25,133

Figure 54

C, which should have been produced at a potential gross profit of $1.25 per unit, actually shows $.17 per unit gross profit.

If we now take the actual units produced and sold and apply to these the budget sales, cost, and gross profit prices, we show that the "mix" actually sold in the month, if sales and cost prices had been that called for on budget, would have given a composite gross profit of $2.41 per unit. Variation of actual sales, cost and gross profit prices gave us only $1.93 gross profit per unit. Our gross profit, had we maintained our prices with the units actually sold, would have given us a gross profit of $25,133.00.

Analysis of why the X. Y. Z. Company did not meet their Budget (Figure 55)

Analyzing the individual amounts given on Figures 52, 53 and 54, gives a nominal picture of what happened in each

case but we cannot get from this study, the potential gross profit gain or loss due to not having conducted the business as planned by budget. Figure 55 works out this analysis in a way to show potential gain or loss due to the variation between budget and actual. We have a potential profit loss of $6,088.00, the difference between $26,250.00 and $20,162.00. We want to know why this potential loss has occurred.

We did not produce 75 units called for on the budget, the difference between 10,500 units and 10,425. We should have made

ANALYSIS OF WHY? THE X Y Z COMPANY DID NOT MEET THEIR BUDGET

	Gain	Loss
Additional Profit Possible	$6,088	
Loss Due to Units—75 Units at $2.50 Each		$ 188
Loss Due to Mixture—10,425 Units at .09 each		929
Gain Due to Increased Sales Prices	$4,007	
Loss Due to Increased Cost Prices		8,978
Totals	$4,007	$10,095
		$ 4,007
Net Loss Due to Not Meeting Budget		$ 6,088

% of Shipments (Units) Performance.....99.8%
% of Profit Performance.....76.7%

Figure 55

a gross profit of $2.50 per unit. There is, therefore, a potential loss of 75 units at $2.50 or $188.00 due to not having sold units called for on budget.

The actual units sold by items or "mix" varied from that called for on budget. There was actually sold 10,425 units. If these units had been sold at the budget sales price and produced at the budget cost, there would have been a unit gross profit of $2.41 or $.09 lower than the budget unit gross profit. This $.09 unit gross profit loss due to "mix" multiplied by the number of units, 10,425, gives the potential loss of $929.00 due to this element.

It will be noted that the actual composite sales price is higher than that called for on the budget. If we had sold the units pro-

duced at the budget sales price, our sales amount would have been $138,226.00. Our actual sales amount was $142,233.00. We therefore had a gain due to increased sales price to the amount of $4,007.00.

Our cost for the actual units produced at budget cost price is shown as $113,093.00. Our actual cost of $122,071.00 therefore involves a potential loss due to increased cost of $8,978.00. Subtract the one gain from the total of losses and it gives a net potential loss due to not meeting budget or additional possible profit of $6,088.00.

This exhibit gives us a picture, by elements, of the comparison of budget with actual operations for the month. By using the figures shown here and studying in detail, actual operation as compared with the budget, we are able to put our fingers on the "sore spots". We lost $929.00 due to the element of the "mix". We find that we did not produce and sell enough of item A to give actual at standard cost the same as budget cost. We did sell more of product B than called for on the budget making a higher gross profit than the budget gross profit. However, the unit gross profit on product A should be 50% higher than on product B. In the future we should produce and sell more of the profitable product, if necessary sacrificing some of our capacity for production of less profitable items. Our schedules for next period should be corrected to be sure that every effort is made to produce more of product A and, where the question arises as to which of the products will be given preference, such preference should be given to the most profitable product. Similarly, a study of the gain or loss due to the other elements will indicate the plan for controlling these elements to approach the condition of 100% profit performance. You will note from the bottom of Figure 55 that our shipment performance was 99.8% while profit performance was only 76.7%. Since we are not running the business to produce a volume of goods but to make a profit on such activity, our first effort should be to build up the profit performance.

In closing this paper, I want to bring out the division made in setting up standard cost comparison and budgetary control as represented by the several exhibits of the X. Y. Z. Company discussed in this paper. Standard cost is the determination of value of products under standard operating conditions. It is used as a gauge to show where, by elements of cost, actual operations have

varied from standard. The variation from standard of the total cost for the period is taken direct to Profit and Loss, leaving products in inventory at standard prices.

Manufacturing budgets represent the plan of operation for the period. The standard being applied to budget operations for the period is determined by the budgeted use of productive equipment. The budget in this case, calls for the use of productive equipment in excess of that actually used. The budget price therefore represents the standard price applying to this budgetary operation.

The last four exhibits represent the Gross Profit and Loss budget for this Company with analysis as to where the actual differed from the budget. Our Plant Balance of $1,055.00 represents a loss in the finishing department of this Company due to not having operated at standard. The potential loss of $6,088.00 represents a loss of this Company due to not having conducted their operations as planned on the budget.

Analysis here shown by these elements is practically the same as that used in our business. We have found them of great advantage in showing what is expected of the business when operated at standard with sales and production as planned by the budget. It is an important factor in the management of the business to effect this desirable condition.

CHAIRMAN JORDAN: I presume the methods of the American Rolling Mill Company are somewhat like the methods I know which I might bring out to explain the "mix".

In another company, some miles from them, they are running an immense line of product for one equipment and the budget of expense is studied for that the same way. They get the speed or mileage through the mill per foot of each kind of material. Knowing that you can get through so many feet per minute it is purely a matter of arithmetic then on all the thousand sizes, and they have over a thousand sizes of bar material that go through that mill. Once they establish the feet per minute that go through the mill it is easy to find out what the tonnage is, since the weight per foot is known.

That mill may run two hundred sizes during the month. The theory is that being based on lineal feet that go through, with a correspondingly higher tonnage, the cost should be the same, it

should make no difference, if they run up to speed all the time, whether they put light or heavy stuff through, because if the tonnage is twice as much and the speed per foot standard, credit is twice as much. Therefore when the "mix" gets off—you see each individual bar that goes through is extended at its standard and theoretically, if they run it at exactly the speed they should have—and kept their budgeted cost the same, they should come out even. If they are slow in roll changes, careless in mill breakdowns and a lot of other things, the thing wouldn't come out right, because if they run a lot of light stuff and are slow in changing rolls they will be short. The same applies to heavy stuff, but that credit for "mix" makes a big difference.

Another point is the matter of arriving at a budget, a point I want to pass on which most of you have experienced. Your burden, your overhead, your cost of production center is divided under the foreman, superintendent, mill men, repair, maintenance and everything of that sort. Let me give you the thought of putting that down month by month, side by side, for two years, going through and cutting out phoney figures, getting expense one place that belongs somewhere else, and journal entries to correct—go through and pick out the lowest in each item of each expense account and put in a column. That means by taking the lowest in different months that gives you a picture of the lowest at which they have ever run. Go through your cost and pick out the highest. Put that down. Add all of them across for the month and divide by twenty-four. That gives you the average. A good place to spot the standard on the variable standards is some mean between the low and the average, the argument being that sometime or other that low has been hit. That sets a pretty good standard. You can apply that to any burden, any overhead account you have. You can apply that to any general expense account of any kind, in general principle, and I am quite certain they probably did something of that sort at the American Rolling Mill Company. I know they have in other companies.

That is a thought contributed along the line of these manufacturing or any other expense accounts or cost centers. Don't set it on the average but get that low and put it somewhere in between. That is where it belongs, because they are going after it just as Mr. Kingsbury said in his paper.

CHARLES R. RAUTH (*Secretary-Treasurer, United States Cast Iron Pipe and Foundry Company, Burlington, New Jersey*): I would like to ask Mr. Kingsbury if, in the establishment of standard cost and indirect items, consideration is given for possible idle time or time for repairs or for periods of depressions in business, and also, if that is considered, whether it applies particularly or whether it is considered in connection with the indirect item of expense?

MR. KINGSBURY: Allowance for normal repair time, set up time and idle time for departments is considered when standards for these centers are set. Part of the work in determining the standard is concerned with making proper allowance for "down" time of equipment. When there is an entire shut down of a department, our practice is to take the expense during the period, for such department, as "Idle Department Expense", direct to Profit and Loss. When operation of the department is below normal, we ordinarily have high actual costs which, in standard cost parlance, means larger unabsorbed plant balance or variation from standard.

MR. RAUTH: What is that allowance?

MR. KINGSBURY: We set our standards for normal operation at approximately 80% of capacity. This percentage, however, varies with departments or cost centers, some centers, where we must have practically continuous operation, are set at nearly 100%. In very few cases have we set the normal below 80% of capacity.

CHAIRMAN JORDAN: What accounts for that twenty per cent?

MR. KINGSBURY: On the 80% normal basis of operation, the 20% allowance is for "down" time due to power delays, "set-up" delays, emergency maintenance, production delay in a preceding manufacturing unit, etc. As I stated previously, we consider the determination of a standard for this allowance a part of the job of setting the departmental standard. It is based on a study of past experience, correcting such experience where it

is determined the delay should not have occurred in standard operation.

MR. RAUTH: On the other hand, if you have established your standard at eighty per cent and you drop to sixty per cent, would you carry the difference into profit and loss simply because of the shut-down?

CHAIRMAN JORDAN: That is supposed to be accounted for, is it not, between your eighty and one hundred?

MR. KINGSBURY: To answer this question properly I would have to know whether you mean that the department was operating at normal for 60% of the period and was idle and shut down for 40% of the period, or, whether this low productivity was produced by operating continuously but inefficiently. In the former case, we would charge the expense incurred during the shut down period to Idle Department Expense. In the latter case, the excess over the standard allowed would show as Department-Under Absorbed Plant Balance.

CHAIRMAN JORDAN: Let's confine our questions as to how standards are set, sales or otherwise.

G. A. MOE: I would like to get something to take back home with me. I have nothing to give to the Association. I would like to know the difference between an engineer's estimate and a standard cost of a construction project, for instance, when you build a filter plant and the engineer's estimate in advance is ten per cent over the actual cost? By setting a standard, as I understand it, you set a mark to shoot at. Is it proper for the engineer to estimate low in day labor or production, for instance, so the manager will have a mark to shoot at?

CHAIRMAN JORDAN: That is municipal work you are talking about. That is outside the realm of what we are talking about, because it is an entirely different proposition. It all depends on the engineer and what he has on the pay roll. If he is honest he would estimate the work at what he thought it ought to cost. Then if he puts on an allowance so as to be sure to come

out right, he would then have set a standard at what he thought it should cost at certain rates and set everybody to it.

S. H. DURKEE (*Factory Accounting Division, Frigidaire Corporation, Dayton, Ohio*): I would like to know about what I call index volume. Isn't the standard volume the thing our standards should be set on, when you have in mind the return on the investment to stockholders? We must set our selling price to what our cost is. If we have overbuilt our plant that is another story; we have to correct that.

The point I am trying to make is, isn't the standard volume, sometimes we call it the eighty per cent rated capacity, the figure at which we should set our standard?

CHAIRMAN JORDAN: You want to know how we should make the rating of the standard compare with the operation of the equipment to give the proper return on the investment involved?

MR. DURKEE: Yes.

MR. KINGSBURY: This goes actually beyond the scope of my paper as I have considered the subject. We do however take this factor into consideration in setting our budget. To give a brief outline of our method of setting budgets, we first determine the net profit we should make for the period (in our case, fiscal year). We add to this, budget for Other Income; deduct budget for Management, Selling and Financial Expenses, arriving at a total budget gross profit for the operating divisions. This total budget gross profit is allocated to the various operating divisions on the basis of investment in the division. We not only include the investment in property account but also investment in inventory and such other items as can be allocated properly. We consider this divisional budget gross profit figure in relation to the budget gross profit to be set on the basis of sales expectancy and cost of producing these goods for sale. In practice, we usually find that the divisional gross profit budget based on sales expectancy and cost, balanced with productive capacity, is in excess of budget determined by return on investment. We set our budget at the higher figure. If, however, the budget set on the

investment basis is higher than that set on a sales capacity basis, this matter becomes one of direct interest to the general management to determine action to be taken to correct such a condition. We feel that we cannot afford to have any one unit operating such that it is not taking its share of the minimum requirement of the business and this condition must be corrected.

J. Q. ADAMSON (*Assistant Auditor, Freeport Sulphur Company, Freeport, Texas*): I would like to ask about setting the standard for producing a natural resource. We are in the sulphur producing business, which is one product. The greatest variation in cost, perhaps, is the variation in production itself.

CHAIRMAN JORDAN: You want to know how to set a standard on the production where the conditions below ground, as I understand it, vary greatly?

MR. ADAMSON: It is so uncertain. That production may run 30,000 tons one month and the next month it might run 40,000 tons. How would you set a standard for such a product in getting at the standard cost?

PRESIDENT SWEETSER: You gentlemen have heard here today men who are supposed to know what they are talking about, and that if a man said it couldn't be done, set out and find somebody to tell you how to do it. This question has been asked in different ways by thousands of different people. No one can sit on this platform and tell how a particular standard could be set on a particular business.

CHAIRMAN JORDAN: You would just have to study the conditions.

MR. KINGSBURY: To set standards for any one business, that business must be analyzed. The same standards cannot be transplanted to another industry of the same kind and be correct. The basis on which standards are set is standardized operation of that business. In your case, it may be necessary to determine how to take the first step, viz., the standardization of your business. Without such action, it is my belief, that the setting of standards would be of no great benefit.

CHAIRMAN JORDAN: In coal mines and places of that sort where you run into different strata, the geologist of the company, who is studying those things, is the man who usually can tell pretty well what that production is going to run ahead for a while. But remember this much—in setting these standards, while you have an average standard production a day as a basis, it naturally is going to vary from day to day and week to week.

In a steel casting plant you may have a certain standard production and the silica sand may run off and they may have core breaks and everything of that sort. Naturally it is going to vary. It can't be something that is going to be true every day in the week. I think that is something to take into consideration in your business in looking at standard production. It is the over-all production that counts. It isn't the day to day production. I don't believe the conditions in your plant, with the under-ground factors, are much different from a plant above ground, because there is in a plant like the rolling mill a variation of conditions from day to day on account of weather conditions, and so on. When it is hot in these sheet mills their productions will go all over the lot.

PRESIDENT SWEETSER: I would like to say one more word, and that is this, concerning the conception that exists when you set standards, you expect everything to come out like those standards. We don't expect that. What we want to do is to make the organization think. You will think about it more if you set up a standard as best you can and then have your records show how much you are deviating from those standards, and then we want to know, "Why did this happen, and the man responsible for the activity— does he know how it happened and can he explain it?" and he is in a better condition to go ahead and reach those standards.

C. G. FAHNESTOCK: *(Cost Supervisor, C. G. Conn. Ltd., Elkhart, Indiana):* .Where should you start in setting a standard for sales distribution cost where your sales are distributed through jobbers? Should you take their figures as to the estimate of costs or should you make an investigation of their warehousing costs?

MR. WILLARD: I was rather in hopes some one would bring up the old question of jobber distribution and its relation to the

question of going direct to the consumer. With regard to the cost of that type of operation I think the average man will find he will have to make his own study, in cooperation with the jobber.

There has been a great deal of discussion in the last two years about the general trend of distributing direct to the retailer rather than through the jobber. I think it will be found, however, that it is equivalent to taking expense out of one pocket and putting it into another. I recall the day after the Farm Bill came out that Will Rogers said that ever since the Garden of Eden, the people had been trying to get rid of the middle man, and everybody had agreed that he wasn't necessary in business, but he was still here.

I think, gentlemen, the jobber is going to continue to be here so long as he gives service, and if you will make a comparison of cost—well, let's make a comparison out of the hosiery industry, for instance. In the hosiery industry, if you are selling to a jobber, you can distribute through the jobber at a cost of three and three-quarters to five and a half per cent, depending on whether the jobber has to furnish more or less money for your operations. If you sell direct to the retailer, your minimum cost is going to be between fifteen and sixteen per cent and in many cases it runs up to twenty and twenty-one per cent.

Now, the jobber has only about a twenty per cent margin between his cost and the price to the retailer, so he has to get his distribution out at fourteen or fifteen per cent and four or five per cent would represent his profit. So, I think that this discussion of whether you are distributing, through the jobber or direct to the retailer, is one that comes down to the question of who is going to pay the cost.

The advantage, as I see it, in distributing direct to the retailer in most cases is that the manufacturer can control the activity the sales department puts forth. If sales are not going the way they should he can put more "pep" behind them. That is not always the case if he sells through the jobber.

CHAIRMAN JORDAN: In other words, instead of taking the jobber's word alone, you take that plus research.

G. A. ROTHRAUFF: (*Auditor, MacBeth Evans Glass Co., Charleroi, Pa.*): I would like to refer to Mr. Kingsbury's Figure 51 and ask him what relation the budget production has to sales forecast?

MR. KINGSBURY: The budget on Figure 51 is based on a composite of sales forecast and available productive capacity. The sales department can always sell a volume of those things where productive capacity is limited and the Manufacturing Department, it seems, can always produce, in large quantities, those things for which the sales department finds a limited market. The beneficial effect of setting budgets on this composite basis is that both the sales and manufacturing departments become intimately acquainted with the problems involved in the other department's operation. The matter of getting a suitable balance between sales distribution and production capacity may be troublesome at first. You will find however, that action necessary to establish this budget brings to the sales manager the necessity for developing a market for the quantity of product which can be produced with reasonable profit and to the works manager, the necessity for tuning his equipment to produce those items which can be sold to the best advantage. The balancing of capacity is straightened out through means of a budget by the cooperation of the sales department and the manufacturing department.

MR. ROTHRAUFF: So your sales forecast should sell eighty per cent of your plant output?

MR. KINGSBURY: Your sales force forecast, if the market is available, calls for 100% of your plant output. Your plant output however, is set at approximately 80% of your plant capacity. You see then that there is some flexibility possible between sales budget and actual sales for the period, provided we can get better than 80% of capacity output on some items from our plant.

CHAIRMAN JORDAN: Now we have covered organization; we have covered records to fit the organization; and we have talked a little about setting standards this afternoon. Frankly, I don't feel satisfied we have gotten into the subject of how to set standards. The subject is enormous. I think it is something which next year we might very well pay more attention to, particularly if we have planted some seeds.

We have talked standard costs a long time but I have never yet known of any session in this organization in which we have agreed on what standard costs were. Everyone's idea is different.

I don't know when it will ever be settled unless we can get down to the basic determination of how to set standards. This is the first time we have had a session on this explicit subject. It has been too short. We haven't gotten as deeply into it as we should have, and some time or other we must do that because it is a subject of which very little is known. We just talk around the edge of it. Everything that has been said this afternoon has a direct bearing on how to set standards. It is basic information, going back to the start of economic conditions, going back to the start of what the world is doing, what industry is doing, what our own companies are doing.

That all must be taken into consideration but for focusing it down as to how to actually set standards, I don't feel we have gotten into it as far as I wish we would have, as to how it is done. The big point is here. The mere fact, possibly, we haven't gotten into it as deeply as we might have indicates the problem that is right up against everybody in industry and business today. It isn't sufficient simply to think, "Oh, well, it's a hard thing". It's like the story that was told here this afternoon about starting "from here for Cincinnati", everybody has to start in his own business. It is a difficult thing to start. Many businesses haven't the past records they ought to have. Many businesses have good records which are of enormous value.

Then we come into the sales department where to save our lives we can't get the sales manager to assert himself as to what he will sell. A great many sales managers are the most artistic skidders and alibi shooters you ever saw in the world when you set them to a task of selling. That is hard to preach, too, getting standards set either for expense or volume of business, when you have a sales manager who bucks on setting any pace for himself at all.

We have done it in plants, yes, but what can you do in a plant unless you get some kind of a volume quota set in the sales department? As I sat here this afternoon it has come over me more and more that this problem of setting standards is an exceedingly deep problem. It is a problem that requires a very wide knowledge. You have to study; you have to know the general business conditions; you have to know the organization of your sales department; you have to know the make-up of it; you have to find out whether they are diggers who will go out in the by-

ways, or whether it has to be served up to them where to go. You have to take into consideration a great many things, but notwithstanding the fact that it is such an enormous problem, which it is, it only shows all the more how important it is to get into it and to get to the bottom of it.

Manufacturing, yes, we have been doing that for quite some time. Standard costs in manufacturing, yes, quite a good many. Some are called standard costs when they are not. Yes, we know more about that but this sales problem—no. Personally, I regard economic reports only as an aid to setting budgets. Somebody mentioned as to whether a certain sales district didn't have a good salesman in it? Are you going to budget it on what that salesman can sell or what he *ought* to sell? I'll say this, it has to be very judicious, along the line of tempting a mule to come along by holding hay in front of him. Through the incentives we shall hear about tomorrow you have to pull them along. If you hire a new salesman he might be as bad as the other; at least, he is new. You might better develop your own men and give them credit for the fact that it is the company's fault they haven't gone into these things far enough to educate, to get the right incentive methods, to get all those things going; and the object of this meeting, again, I want to say is not for you to expect to get anything out of these papers and get something verbatim and say, "I'll do that". The object, I hope, is accomplished by the fact that it will impress the depth of this subject, and wherever there is depth there is a wonderful opportunity for any one to tackle.

You may say, "The National Cash Register Company is easy to run", but it isn't. It has fewer articles to sell than others. There are a lot of calculating machines. There are a lot of business men to pull over. If nothing else, there is the problem of enormous volume, but look at the pep. Standards have to be set. They have to make a study of it. You heard a man in the treasury department, who came up in the business, talk as if he were the sales manager. That same opportunity exists for anybody. If not where you are, it may be somewhere else. You're not frozen where you are.

I want to bring up this point if there is nothing else when we get out of here—it isn't a matter of getting up here and having a little talk over costs. Setting standards goes beyond that. It is a study of business, a study of human action, a study of psychol-

ogy. It isn't enough to say that a territory should get twice as much in sales—that may be true but you can't get it all at once; you have to work it up. You have to figure out an ideal.

One company I know of took six years to reach its ideal in organization and set up its executive duties. They finally got there. Who was discouraged? Nobody. It had to be a matter of psychology.

Remember that tomorrow morning we have something that ought to be more interesting than almost anything else, and that is the session on incentives for key men and executives. We are not going to touch the labor and plant because that has been talked about so much. It has to do principally with key men. Many companies have had profit-sharing schemes for executives but the poor old superintendents and foremen and office people have plugged along on no great salary. That is passe now; the thing to do is to have incentives for everybody who has anything to do with saving and making profits for the company.

This morning we discussed sales records; yesterday, manufacturing records; this afternoon, how to set standards. You have had illustrations and discussions of economic factors that have to be considered. Mr. Kingsbury has shown you the layout of how they work it in his company. I happen to know that the results in that plant have been good. They haven't gone far enough to be wonderful yet, but I can tell you in the other plant I spoke of out west where they set up the standards two years ago, they set them deliberately at one and a half million dollars less than their cost. In other words, if they continued at the same cost there would have been a million and a half under-absorbed. I had a letter from out there which stated instructions had been given to refigure all the standards and set them a million dollars lower than they were, that they were now over-absorbed on those original standards. That will mean two and a half million dollars they will go after. They are already in the last million. They have cleaned up in the first million and a half, and that, gentlemen, on sales of about $20,000,000 a year. Just figure that percentage for a while and see what it means.

How were they done? They were done by conscientious hard reasoning of the circumstances. The mere fact of what we have discussed shows you it takes a lot of reasoning, and the point I want to bring out is that there is nobody in a better position to

do that reasoning and use his head and get into practical problems than the cost worker and the statistics department of the company. Don't stop at keeping statistics—get in and progress, get in and dig, get into the work of the future. Get into the matter of setting standards; get records first. Get at them scientifically if you can.

By the way, Mr. Greer wanted me to say that he didn't intend to convey the impression that by going to the field first with their budgets they were doing it the worst possible way. He said he meant that that way alone was the worst possible way on account of the danger of setting them too low. He explained that was what he meant, thinking it would be possible to have the scientific stuff first and then check.

Those are the things for you to figure out. The problem of how to set standards is a broad one. The point we want to get across is the wonderful field for everybody in our Association. Each member ought to be the best one fitted for it from the standpoint of strategic position, to get into those things and study them out, and that is the entire object of this program.

Tomorrow afternoon we have seven men who will tell you something that will be exceedingly interesting, that will astonish you with the results that have been accomplished.

PRESIDENT SWEETSER: The meeting is now adjourned.

SESSION V

INCENTIVES—EXECUTIVES AND KEY MEN

THURSDAY MORNING, JUNE 20, 1929

This Session Was Organized Under the Direction of

MYRON J. HAYES

Eastman Kodak Co., Rochester, N. Y.

I. H. FREEMAN began his industrial experience at an early age starting in the steel mills of Pittsburgh in 1902. Early in 1906 he began work with the Westinghouse Electric & Manufacturing Company in the Production Department and was eventually transferred to the Cost Department. During his work with Westinghouse, he took some part-time work in the evening session of the University of Pittsburgh in accounting and business administration. Since 1913 he has been with the General Electric Company in various capacities and is now the wage rate and employment supervisor at their Ft. Wayne plant.

FREDERICK D. HESS obtained his Bachelor of Science Degree from Northwestern University School of Commerce, being primarily interested in marketing work. Following his graduation, he held positions of sales manager and sales research manager for several companies, prior to his connection in 1928 with the Coöperative Foundry Company as Director of Sales and Advertising. He is a member of the Society of Industrial Engineers, Advertising Club, Sales Managers Club, and a life member of his college fraternity, and the Commerce Club of his University.

INCENTIVES—EXECUTIVES AND KEY MEN

PRESIDENT SWEETSER: I am sure every one of you will be very much interested in the announcement I am about to make. Mr. Jordan has indicated by his faithful and intelligent handling of these meetings his interest in this Association and in every one of you men. I know that you all feel a debt of gratitude to him for the remarkable way in which he has coordinated the activities of these sessions. As if that were not enough, he wishes me to say to you that he has decided, on account of the importance of the subject of yesterday afternoon, "How to Set Standards", and also due to the fact that none of us feels satisfied that we have put it over as we would like to, Mr. Jordan announces a contest in which he will offer the sum of $500, a first prize of $250, a second prize of $150, and a third prize of $100, to bring out the best thought we can get from our Association by means of an essay on this subject! He will enlarge upon this somewhat when he comes to the platform. I am sure you all appreciate what a fine thing this is.

Mr. Jordan has prepared a statement, another coordinating activity.

MR. JORDAN: I think there is very little to say along the line of coordination because we are all very much interested in the "mazuma" that comes after standards are set and you are organized and after you have incentives. We are going to hear something this morning worth while. As far as I can find out we are going to hear something that will give us a lot of help in the matter of incentive methods. It follows in the natural sequence that we have set our records to fit the organization. While I think we have left a little hungriness in the matter of setting standards, after we have the standard set that becomes a basis of quotas and budgets and standard costs and everything of that kind.

On the basis of those quotas we build up our incentive for key men.

This afternoon we are going to have an old-fashioned meeting. The final services or obsequies that will take place this afternoon will bring a group of men who are going to tell you stories of what necessary mechanisms have done in the businesses with which they are connected. I understand some of them will make you rather dizzy but you can follow them.

Yesterday we had good stuff. I think I am the only one so far who feels we didn't get along as we should have yesterday. I feel just this way about the session yesterday. All standards, all budgets, all quotas, all incentive methods, everything else, depend on how you go at it to set your standards. It is really the basic job that has to be performed in building up any of the latter day methods of accounting comparisons and control. Personally, I would like to have covered about three days in yesterday afternoon's session. On the other hand, I think in our own organization we have a wealth of knowledge that can be brought out on that subject.

I feel this Association can do a most constructive thing. Let's get down to real, common, every-day facts on how to get at this matter of setting standards, the real mechanism of it. Let's assume we have studied world markets and everything of that sort and then get to the place where we want to set these standards. How are we going to set standards in our selling branches, in our selling departments, all the way through? How are we going to set standards for office procedure, accounting work, statistical work, getting down to all such features as to how many invoices a clerk should make a day, how many should be typed, how much posted to the ledger, and so on?

A description and outline of this contest will be mailed to each member. You know, this Association is the only association that amounts to anything nowadays in constructive work, anyway. But we haven't started yet, and this subject of setting standards is something on which this Association can do a wonderful piece of constructive work for industry in general.

The idea is this—only three will get a prize but we hope to get two hundred papers. Think of all the material we will get for the money. I hope you will all go into it. Remember this—theories won't work; it has to be practical suggestion as to how to go

at it. Don't apply it to your own business so much as from a standpoint of how to go at it to analyze these things.

That is all I have to say this morning. I know you have a fine session ahead of you.

PRESIDENT SWEETSER: This session is to be in charge of the chairman, Myron J. Hayes, of the Eastman Kodak Company. I will ask Mr. Hayes to come forward and take charge of the meeting.

CHAIRMAN HAYES: In continuing the story of organizing a business for profit that we started last Tuesday, our contribution this morning is to endeavor to give some actual descriptions of incentive methods and show actually how they work and what they have accomplished. Incentive methods as applied to general workers has been quite thoroughly discussed in previous meetings of this kind and is generally known in industry today, so we will cover only briefly this type of incentive and dwell more on incentives for key men, supervision and higher executives.

The question that first appears before us is, Why incentives for key men and executives? These men who are in responsible positions are naturally expected to scrutinize all expenditures, reduce costs and produce the best product at the lowest cost so as to make a profit. That is true, but it is often done in a mechanical way and as a burdensome duty rather than in a spirit of personal interest.

We often wonder when we view a small business, How does it prosper? What makes it go? Generally the reason is simply this—the financial reward for the owner plus his pride of achievement. What we hope to do is to show how personal incentive creates a real feeling of proprietorship which is invaluable in business today.

In one of the previous sessions, the illustration of the speedometer was used to show how it indicates the speed of the business. Likewise, incentive plans, properly applied and well conducted, accelerate and lubricate the business.

There are various types of incentive plans, but what we want to discuss this morning are the financial and non-financial that will cover the manufacturing and also financial and non-financial incentives that will apply to sales and distribution.

It is with great pleasure that I present to you a man who will handle the subject from the point of view of the manufacturing division, Mr. I. H. Freeman, Superintendent, Wage Rates and Employment, General Electric Company, Fort Wayne, Indiana.

AN INCENTIVE FOR KEY MEN AND SUPERVISION

I. H. Freeman

Supervisor of Wage Rate and Employment Section, General Electric Co., Fort Wayne Works, Fort Wayne, Ind.

IN order that you may have a picture of our organization, let me say that in our work at Fort Wayne, we are simply an operating plant. We have no direct connection with the sales organization but bill our product at cost to a general office. However, our plant at the present time employs about ten thousand people. We have seven major divisions in the plant, each headed by a superintendent who probably would rank as a manager in a smaller concern. So, in considering what key men are in our organization, I have limited myself to key men below the rank of superintendent, taking that class to include the general foreman, foreman, and in some cases, the assistant foreman.

One lesson we have learned from our experience with wage incentive systems is that if you want a key man or supervisor to really get up on his toes and tear into his job, give him an incentive based on the performance of his department that will really reflect his accomplishments under all conditions—normal, sub-normal, and abnormal. Such an incentive must be based on the main functions of his job, reflect daily the progress of his department, and yet be simple enough that he can understand it without a slide rule and a course in higher mathematics.

The outstanding function of any factory supervisor's job is to bring about an increase in productive efficiency, i.e., more production per man hour and per machine hour. To accomplish this, each and every operator in the department must be interested in his own job and concerned about all the work necessary to turn out the completed product of the department.

Monthly operating reports for executives and superintendents are very necessary and valuable, but the information on such

reports is usually tabulated by division and can not be exploded sufficiently to show the progress in the small sections which make up the division. Then too, such information is prepared but once a month and, when available, is past history. What the key man and the supervisor needs is a daily check on his progress, which shows him exactly where he is heading.

Our present incentive system is based on the main function of the supervisor's job, gives him a daily check of his progress, and is so simple that very few reports are necessary. The supervisor's incentive is so closely associated with the operator's incentive plan that an explanation of the one necessitates a brief description of the other.

At present, a very large portion of our entire factory organization performing direct or contributing labor and expense labor, is on group incentive, a small part is on piece work, and the balance on day work. New installations of the group incentive plans are being accomplished constantly and will continue until every individual in the factory shall have a definite incentive for more and better work.

The particular group incentive plan we are using is in the class of partial participating plans, employing the Rowan principle for determining the bonus per cent. The plan provides that individuals having a community interest in the result of their combined efforts are included in a group, which group is credited in time for parts produced and accepted by the final inspector. Parts not up to standard must either be repaired by the group or are rejected without any credit being allowed the group for work performed on the rejected units.

Included in the group are all the contributing and expense help, such as set-up men, material handlers, helpers, line inspectors, crane operators, and all other workers who can assist in getting out the work, in addition to those operators actually engaged in fabricating the product.

Each member of the group has a day rate which reflects his value to the Company, based on quantity and quality of work produced, dependability, and flexibility. Adjustments in day rates are made as the individuals show increased value to the Company.

Daily inspection reports indicate the units produced and the time standards to be credited to the group for such units. A simple form is used on which the time credits or "allowed hours"

are accumulated daily. On this form also are accumulated the charges, or "time taken", as shown on the operators' clock cards. Should the allowed hours exceed the time taken, a gain is realized and the standing of the group is expressed in a per cent found by dividing the gain by the allowed hours. This per cent varies daily as the allowed hours and "time-taken" hours for the current day are added to the accumulation of the credits and charges to date.

Each day a factory clerk calculates the group per cent and posts it on a small board where it can be seen by all members of the group. In this manner, the key man or supervisor has accurate information as to the accomplishments of the group, which includes all those under his control and not just those operators engaged on direct labor operations.

The members of the group are paid each week at their day rates for the hours worked as shown on their clock cards. No time slips or work vouchers are necessary. At the end of the month each group member is paid, as extra compensation, the per cent of his total day work wages for the month equal to the per cent of gain as shown at the end of the month.

Each member of a group has a two way incentive: first, to increase his individual value in order to receive a higher base rate, and second, to cooperate with all other group members to earn a high per cent of group bonus.

The system of arriving at the group bonus percentage is thoroughly understood by our shop workers who do not resent it in the least, the cost saving feature of the plan.

The time factor includes allowances for normal scrap losses and the group members can add to their earnings by improving the quality of their work and thus eliminate losses due to parts being scrapped or time spent in repairing defective parts.

The plan provides a direct incentive for key men and supervisors to increase production efficiency. This is accomplished by establishing a cost factor for the supervisor in addition to the time factor for the group. The cost favor is a money value which is credited for each allowed hour produced by the group.

The supervisor's credit consists of the total allowed hours produced by the group for the month multiplied by his cost factor, and his charge consists of the day work wages and extra incentive wages earned by the group members during the month

and such excess cost as may have been paid group members for working overtime, as we pay the group members an extra allowance for all overtime work.

The incentive is twofold, rewarding the supervisor for increased quantity of work, which sets up additional credit, and also rewarding him for quality of work, since the time factor includes an allowance for normal scrap losses which results in a credit if no scrap is produced.

The daily posting of the per cent of gain shows everyone just how the department is progressing, and this fact has a very favorable effect, as the best results are always accomplished by setting up a certain mark to shoot at and constantly, day by day, knowing just where the department stands, rather than to wait until the end of the week or month and then try madly to overcome losses incurred earlier in the period.

A definite standard of measurement helps executives and the superintendent to place a proper value on the key men and supervisors. A supervisor of a department working under piece work may get along fairly well, whereas, under group incentive, the same supervisor may not be able to measure up. The supervisor under our plan must really run his department, see that no hold-ups occur for material, and that machines and equipment are in working condition all the time. Failure to do this affects the output of the department which is immediately reflected in the cost per allowed hour.

Since the plan accomplishes higher wages with lower costs, the necessity for driving is minimized and, instead, a spirit of team work is fostered. The supervisor directs the work and the operators support him to an extent not to be expected under piece work or other individual incentive plans.

More production per man hour and per machine hour has been experienced universally, resulting in greater volume per square foot of floor space. This increase has permitted us to accept greatly increased production schedules without additional investments in buildings and equipment except where it has been necessary to enlarge the "neck in the bottle".

It is our belief that every employee—both office and factory—should be rated as to his value to the Company and have an incentive to increase his value for which he should receive definite additional compensation.

Some interesting incentive installations recently effected are construction, maintenance, transportation, power house, tool rooms, shipping office, scrap department, blue print department, and production and stock sections.

From experience we are sure that an incentive for key men and supervisors is a valuable tool with which management can effect additional cost reductions, keep the machinery and equipment operating in first class shape, and adequately reward the supervisor for his contribution in operating his department to maximum effectiveness.

CHAIRMAN HAYES: R. W. Darnell of the Federal Electric Company will make a few comments on the paper at this time.

R. W. DARNELL (*Secretary and Comptroller, Federal Electric Company, Chicago, Illinois*): If it is the purpose of the person discussing these papers to disagree with the speaker, I am afraid I am going to be somewhat a failure because I agree thoroughly, in principle at least, with Mr. Freeman. Key men incentives have proven to be successful in a number of organizations. I think that all I can offer this morning will be in support of Mr. Freeman's remarks from experiences in one or two organizations with which I have been connected.

First, as I see it, there are two classes of key men incentives. First is the incentive paid on the basis of savings and second, a profit sharing plan. I believe from the manufacturing standpoint and the standpoint of the foreman, savings and not profit sharing is the proper plan.

I had occasion a few years ago to make an installation of a savings plan among a group of some forty or fifty foremen. The foundation of this plan was the savings made on manufacturing expense of which these men had absolute control. No factors of expense were brought into this budget that they did not control themselves. A budget was set up for each department and then accumulated for the plant as a whole, over which these forty or fifty men had control. They were allowed rates per productive hour for each item of manufacturing expense and at the end of the month the total productive hours within the department were extended by the rates allowed, giving them an allowed manufacturing expense. This was compared to their actual expense and a saving, if there was any, was recorded.

That, in brief, is the plan that was used, and here is the result of it. All of these foremen working together as a unit in the first year of the operation of the plant had something like $800,000 of expense to work with. They effected a saving of about six per cent. In the second year that increased to about eight per cent and at the end of the fourth year, it was up as high as twelve per cent. In paying these men they were given the per cent they saved multiplied by their yearly salary as a bonus. At the end of the fourth year on a manufacturing expense of $800,000 the saving was in excess of $100,000. That is considerable incentive to the man himself and was a great saving to the company.

That is all I want to say about the manufacturing end. There was one point Mr. Freeman brought up in his talk on which I would like to ask him to be more specific. The foremen, as I understand it, receive their incentive and their bonus through cost reduction, which takes in all phases of the operation of the department. It appears to me that there might be some possibility of the foremen recommending rate decreases which affect the operators' incentive so as to reduce the cost of the department and thereby increase the foremen's individual bonus. I should like to have Mr. Freeman discuss that point further and tell us just how that is overcome.

MR. FREEMAN: The foreman in our organization has very little, if anything, to do with setting standards. He is too busy getting out production. The wage rate section, which is charged with the responsibility of setting standards, is composed of a group of engineers who are thoroughly familiar with every detail of the operations involved.

The foreman can not cut standards. This is the way he makes his cost reduction bonus. Under the Rowan principle, the per cent of gain is determined in relation to the gross, or allowed hours, and this per cent of bonus is applied on the lesser figure, the more bonus the group earns, the lower cost is realized by the company. Does this work against the operator? It does not, because there can be no cost reduction unless it is accompanied by higher wages per hour to the operator. The two are coincident and it is to the foreman's interest to keep the per cent of bonus earned by the group to the highest per cent possible.

No incentive system, to my mind, is complete until it applies both the principle of suction and the principle of pressure to the same problem. The operators' incentive is the "suction" incentive and the supervisors' incentive the "pressure".

I believe that it is possible to establish an incentive system for all key men. If the rate at which light travels can be measured or the distance to the moon, why can't the activity of any individual be measured? Can't you set up a standard? The whole situation is setting your standard. When you have your standard set you can apply the incentive as a matter of choice. You can apply one of a number of different incentive systems but the main thing is to establish your standard, and the degree of success with which your incentive system operates is dependent largely on the accuracy of your standard. It is no easy job and it is no side issue for some one in your organization to do.

V. W. COLLINS: I notice the lack of two incentives which we consider very important in the manufacturing end of the industry. I would like to ask Mr. Freeman if he has given consideration to these matters in his organization, that is, quality and service to his customers. Scrap, low cost, and quantity production are given consideration. From our experience of several years we feel that the factors of quality and service to customers are very important.

MR. FREEMAN: Quality is first, yes. No group gets credit for any unit until it is accepted on final inspection. Take a General Electric refrigerator, for instance—it has to be perfect or it won't work. It won't work for us and it won't work for you. So quality is taken care of.

We appreciate that you can't make bricks without having some scrap. There is a hazard present in every manufacturing process and we recognize that. Coming back to the standard, we determine very carefully and concisely what a normal allowance for manufacturing hazard should be and include it in the time factor. If that group can reduce that normal, they gain; if they allow their scrap to exceed that normal, they lose, because they don't get credit except for the finished work that is up to the standard of General Electric production.

As to service—in the foremen's group we do not include any incentive for service. However, the way our organization is set

up, the matter of service is largely under the control of the production section and we do have a factor for service in the production section, but I am limiting myself entirely to the foremen as the key men and I don't want to take your time to discuss that here. I will be glad to discuss that with the gentleman who asked the question.

W. G. BEYRER (*Cost and Payroll, National Cash Register Company, Dayton, Ohio*): I want to ask Mr. Freeman what the size of his groups is. Does each group get paid on the basis of the number of completed General Electric units turned out or do the automatic screw machine men, for example, get paid on the units they produce?

CHAIRMAN HAYES: We will answer it by saying we should try to confine ourselves to the plans for key men supervision and operation.

MR. FREEMAN: The conditions control that entirely. At our plant at Decatur, where we manufacture nothing but washing machine motors, every individual in the plant is based on completed motors because the set-up permits that. In other divisions the automatic screw machine operators, where we have a screw machine group, are paid on the work as it passes from them, is accepted by the inspector, and passes on to wherever it is used. We do not confine ourselves at all in giving credits to set rules as to size of group but we apply the plan to that particular group that the conditions fit.

A. J. C. BEACROFT: Do you set up in your standard, do you give an extra allowance, if you happen to purchase an inferior grade of raw material?

MR. FREEMAN: We don't do that. We test all our raw material before we accept it.

MR. BEACROFT: Yes, but you are probably getting cheaper material at a cheaper price.

MR. FREEMAN: I wouldn't go into that; I could argue on that all night. We haven't that problem really, to get back to the subject. We don't allow inferior material to get into the factory.

L. A. BARON (*Comptroller, Stutz Motor Car Company of America, Indianapolis, Indiana*): How do you keep inferior material out of your plant. We can't. How are you going to keep a casting out of your plant that has a hard spot in the middle of it?

MR. FREEMAN: All I can say is that I will invite Mr. Baron up to find out how that is done. That is not in my department but it is accomplished.

CHAIRMAN HAYES: If you will pardon me, I might say, we all know that as the material comes into the plant the defect may not be discovered until the casting is milled. It may develop afterwards that there is a sand hole in that casting that all inspection as known today would not discover it before it was started. From that point on he probably has taken into consideration his average losses. As he has explained to us, those standards naturally have to be set up on the law of averages.

EDWARD W. KRUEGER (*Partner, Walton, Joplin, Langer and Company, Chicago, Illinois*): I am wondering to what degree of efficiency your standards are set in order to make them real incentives. It may be a personal question and you may not want to answer it, but are your standards set so as to give your key men five per cent, ten per cent, twenty-five per cent, or fifty per cent as a bonus at the end of the month or whatever the period is? I have seen some systems give so small a standard that they are reactionary. I would like to have an expression of opinion from the audience as to what would be a fair incentive.

CHAIRMAN HAYES: I think Mr. Freeman covered his percentage in his paper. If you don't mind, will you please state briefly what percentage you think it necessary to produce a particular incentive?

MR. FREEMAN: I will answer it in another way. Our foremen and key men are earning from fifteen to thirty per cent bonus.

T. B. DUNN: Is the incentive plan you are now using original with you or was it installed by some of the companies exploiting this incentive plan?

MR. FREEMAN: No; Bill Dunnell of Chicago, as far as I know, is the godfather of this plan. He is with the Edison Electric Company. He has forgotten more about incentives than I know. I was a hard-boiled piece man and it took two days to sell me but I have been sold for six years.

J. F. STILES: In what group are the inspectors included for a bonus or are they paid on a special basis of another kind?

MR. FREEMAN: In our organization the inspector is like a supervisor and if the job is big enough he is called a foreman of inspection. Then there is the head inspector, ranking with the general foreman and the chief inspector who ranks with the superintendent. The line inspector is included in the operating group. The head inspector is included in the supervisory group, as we are discussing it. The chief inspector is in the executive group, of which I know nothing. All I know is that I am in it.

MR. STILES: On what basis are these inspectors paid?

MR. FREEMAN: The line inspector is paid according to activity. The head inspector is paid on the cost reduction basis. The chief inspector is paid on the year-end bonus.

C. F. KALER (*Secretary, Central Typesetting and Electrotyping Company, Chicago, Illinois*): Unfortunately, the plant I represent employs nothing but union labor, whose wages are fixed by contract for a year or a longer period. Therefore, it is practically impossible to set up any incentive for the workmen. I am wondering if any one here has had incentives with union shops and whether any one knows of a plan for supervisors under those conditions.

JOHN M. CARMODY (*Editor, McGraw-Shaw Company, Chicago, Illinois*): I have operated under the condition you mention. Inasmuch as this is a special topic, I will be very glad to discuss it with you personally and not take up the time here, if that is agreeable to you.

ALFRED S. SEAR (*Wadsworth Watch Case Company, Dayton, Kentucky*): If the product starts from the preliminary department and reaches an assembly line and is spoiled in the as-

sembly line, how do you penalize the foreman of the assembly department?

MR. FREEMAN: It all depends on your point of credit. If it is a finished unit, such as a washing machine motor, then everyone is penalized. The group that has to repair it has to do additional work before it gets credit. If the point of credit is where that unit leaves the particular group in question, that group gets credit for it. If it goes into the assembly group, that group has to reject it; it is charged back to the group that has applied it.

MR. DUNN: The question I had in mind was, do you have various groups of efficiency if the men are making the same product? If they get to a certain stage of efficiency do they go into other groups?

MR. FREEMAN: They have their base rate increase in proportion to individual value to the company, based on quantity work, quality work, dependability, and flexibility. That is an individual matter. It doesn't affect the per cent of the work at all.

MR. BARON: A few moments ago you spoke of the refrigerator. I presume the General Electric refrigerating unit is built, possibly, on one assembly line and the cabinet on another assembly line. If the inspector at the end of the cabinet line accepts them as good and then when they are completed as complete units another inspector looks them over and finds a defect, how do you penalize your inspection department for errors such as that?

MR. FREEMAN: The line inspector is included in the group with the operator. If a defect is found that has passed out of a group into a subsequent group, the group responsible for the defect is penalized to the extent of the credit it has received, not only the inspector who passed in that group but the operator who created that error.

HOWARD C. ZOOK: Do incentives produce quantity at the expense of quality when quality in a product cannot be detected until used by the customer?

MR. FREEMAN: I don't believe that question will ever be answered. As long as you have you inspection organization at

sword's points with your manufacturing organization quantity tends to decrease quality, but when you combine the two and get them to work together and you incorporate in your incentive system a provision for cooperation such as you have in any group plan, you will not find evidences—at least, not to the same extent —as where quantity production is had at the expense of quality production.

SAMUEL K. WALTERS, (*Atlantic Refining Co., Pittsburgh, Pa.*): How are maintenance costs taken care of in the incentive plan? Do the maintenance men get compensated? Are the incentives figured over a short or long period? If over a short period, and no deduction, what prohibits maintenance not being taken care of properly?

MR. FREEMAN: The maintenance man is a local man assigned to a section to take care of the machines in that section; he is the service operator; he is contributing help. He goes right into the group. He has an incentive to keep those machines going all the time. Major repairs to machines are done by the general service division, which is a division outside of the manufacturing division.

We have an incentive system for all construction and maintenance work, giving us one hundred per cent coverage. I have not touched on this because I kept my subject entirely on production foremen.

CHAIRMAN HAYES: We are going to proceed to the next paper, which covers incentives in the sales end. We will now hear from Mr. Frederick D. Hess, Sales Manager of the Cooperative Foundry Company, Rochester, New York.

INCENTIVES IN DISTRIBUTION

FREDERICK D. HESS

Manager, Sales and Advertising, Coöperative Foundry Co., Rochester, New York

YOUR job as accountants is not complete when you have designed a nice system, drawn up some beautiful forms and have synchronized the whole thing into a set of accounts, because as

I see it, "our job is to move merchandise at a profit", and, therefore, we need your help in analyzing the weak spots in distribution with a view of increasing our net profits.

After all, your accounts, books and most of your statements are only photographs of *past* events, whereas, we need you as financial advisers in our efforts to move merchandise not yet sold; and merchandise is moved mainly because of the incentive, or "motive power" inherent in the merchandise, or accompanying it on the path from the factory to the final consumer.

In this travel, we find as a general rule, three distinct groups to be influenced, and need, therefore, an incentive "chain" with three links:

One for executives, and key men, inside the organization; another, incentives for distributors, including wholesalers, jobbers, dealers and sales agents; and the third, which is almost the most important now, incentives for consumers.

In other words, where we formerly introduced some incentive plan for salesmen only, in order to move goods, nowadays we are forced by mass distribution, chain store methods, and other modern marketing tendencies, to create new incentives. And note how American industry is changing steadily from incentive methods for the personnel to methods for the distributor, then finally to incentives direct to the final consumer—over the heads of the ones previously mentioned. All in an effort to establish more or less automatic demands, and thus, in a way, eliminate incentives altogether, at least, as formerly used.

Now let us classify and discuss the most important incentives according to the following sub-divisions:

1. Incentives for the sales personnel in the company.
2. Incentives for distributors.
3. Incentives for consumers.

And in each case I shall sub-divide the subject, as far as possible, into financial incentives and non-financial incentives.

Incentives for the Distribution Executives Inside the Organization

Formerly the sales incentives to this group of personnel consisted of salaries, with an occasional commission, bonus, or prize, for special campaigns. Such methods were, of course, too weak to

get more than the average results. Company after company is finding out that its executives and key men need more powerful stimulants in order to exert their utmost, and, furthermore, that some of the same tonics have to be applied to their assistants in order to get the best results.

Financial Incentives

Commission Plan

You heard yesterday a very fine address on incentive plans in the National Cash Register Company selling direct. Such a plan is fine and is wonderful for a company of this type; but more companies distribute the other way, that is, through a middleman. Therefore, such a plan as described yesterday is not sufficient, and is usually subject to changes and improvements.

Point Plan for Branch Managers

At the Stromberg-Carlson Co. in Rochester, such a plan is in operation and has been used successfully for several years. Branch managers have been set a certain standard as:

Quota of Volume for the year, equals	40%
Average profit for the year, equals	30%
Average expenses for the year, equals	30%
Total	100%

The method of computation of earnings is expressed by the equation:

$$\left(\frac{\text{Volume Sold} \times 40\%}{\text{Quota Volume}}\right) + \left(\frac{\text{Actual Profit} \times 30\%}{\text{Quota Profit}}\right) + \left(\frac{\text{Standard Expenses} \times 30\%}{\text{Actual Expenses}}\right) \times \text{Salary Rate per Week} = \text{Total Income per week (Branch Manager for example.)}$$

(Income per week) $\times$ 52 = Yearly Income.

This works very well, and, of course, the main benefit from such a plan is that in order to set up standards, the company had to tell the branch managers, keymen and salesmen, what items were profitable and what items are not. As a consequence, the entire level of profit has been raised through that simple plan.

Salary plus a Bonus Plan, based on Net Profits of Company

The successful executive and sales bonus plan of the Leeds & Northrup Co., of Philadelphia, manufacturers of electrical measuring apparatus, will work where you cannot establish bonus or incentive plans based on the efficiency of the individual branch or unit.

The reason for such a plan is that one sales engineer might sell a certain equipment to the production department of a company in Oklahoma; another sales engineer of the same company might have to call on the purchasing department in Chicago, whereas, a third sales engineer of the same company might have to call on the chief engineer in New York. The entire sales force, therefore, has to work together and accept a bonus based on net profits of the entire company.

Profit-sharing Plan Based on Sales Unit Standard

Such a plan is in successful operation, according to A. S. Rodgers, President, in the White Sewing Machine Co., Cleveland, Ohio, with 125 branches. Here certain standards are set up as, for example, profits per sale per unit, for amount collected per open account, and for percentage of accounts collected. Then the branch managers are given a profit-sharing of a certain per cent of salary for each $1.00 *increase* in unit profits above standard, another per cent of salary for increases in collections above standard; and again a different graduated scale of per cents of salary for increases in open accounts above standard. Of course, such a plan has its limitations in that you can stay only within a certain standard with that plan.

A Split Profit-Sharing Plan

Such a plan is in use by the Walworth Co., Boston, Mass., selling to jobbers, dealers and also direct. Therefore, the branch executives get a bonus 50% of which comes from the profits of their own individual branches, and the other 50% from the profits of the company as a whole. The bonus is said to run anywhere from 10% to 25% of salaries of the executives.

Combination Plans used in one Company

Several plans are, according to F. E. Ketchum, President, in use by the Graybar Electric Co., Inc., a sales not a manufac-

turing organization. This distributing organization consists of nineteen main "houses", each having under its supervision from one to eight branches (47 branch offices).

The executives constituting the "house committee" house manager, sales manager, service manager and credit manager, enjoy one bonus plan based on net profits of the house. The branch executives and sub-executives, correspondents, accountants, promotion men, etc., called the "office committee", enjoy a bonus plan based on saving over and above standard ratios between gross profits and expenses under their control. For example, if 1% is saved, they get 2% bonus, based on salaries. Certain "general office" executives, President and Vice-presidents, form the "general department committee" and receive a bonus based on a certain percentage of net profits of the company.

In all of these plans the salary is, of course, the main basis, but room is left for the judgment and decision of department heads. Results are published monthly.

Stock Profit-sharing Plan

Such a stock profit-sharing plan is in use at the present time at the Dennison Mfg. Co., Framingham, Mass. The annual distribution of extra remuneration is in the form of stock with a cash dividend on stock holdings. This is really the main difference between this plan and the previous ones. However, it is worthy of note that two distinct plans are being used with this company, viz., the "employees" industrial partnership plan" and also the "managerial industrial partnership plan."

Since the first one concerns the general rank and file employees only, I shall confine my remarks to the latter. According to "Some Dennison Plans and Practices", the official publication of the Dennison Company, the executives and sub-executives share in the net profits of the company, five years of service being the prerequisite for partnersip. In 1927 some 37,899 shares of stock were distributed (par value $10.00) to a total number of 413 managerial partners.

Deferred Stock Bonus Plan.

Such a plan is in use at the present time by the DuPont Co., where executives are not paid a bonus in cash immediately, but in deferred stock, along the lines of the plan of the General Mo-

tors, which you all know about, since it has received so much publicity since its initiation.

Note also that at DuPont's they use a class "A" stock bonus for any employee for conspicuous service, distributed regardless of company earnings, whereas class "B" stock bonus, is distributed to "selected" executives, according to net profits of the company.

In all the profit-sharing plans in use today, comparatively little effort or success has been made with a more accurate rating scale as a means of a more exact payment of the efforts of individuals. I believe that the only company which has succeeded to some extent along this line is the Dennison Mfg. Co.

I fully believe that here is a field which is wide open for accountants, as well as other managerial executives, to perfect. We all need your help to set up more definite standards so that earnings of executives can be made more accurate. We need more job analysis, and we need more unlimited earning scales, so that we can get every executive on his toes, and to exert his utmost. I agree with Mr. Jordan that we will be benefited thereby. So far, I think, we have not even scratched the surface when it comes to developing a real honest-to-goodness effective profit-sharing plan, which will make an executive feel more like a co-partner of a business enterprise. There is an unlimited field for accountants.

Let me call your attention to a statement published not long ago by Charles M. Schwab: "Let us make the salary not $10,000.00, but $3,000.00. In addition to that, I will give you a percentage on all you save in manufacturing costs, based on an average of $1.50 per ton for putting the material into pig iron. If you cut the cost to $1.45, I will give you 1% of the amount saved; if to $1.35, 2%, and so on. Thus you may be able to earn for yourself not $10,000.00, but $25,000.00, or $75,000.00, and more. You devote yourself to cutting costs and making money for the company and the company will play fairly with you. In that way you will, in effect, determine your own salary every year".

History of Profit-Sharing Plans

While at the present time probably only 10% of American executives are on a special compensation or profit-sharing plan, it is safe to say that such plans will increase rapidly during the

next few years. You will note the constantly increasing growth of such plans from the following:

The term "profit-sharing" was, according to Mr. Boris Emmett (Bulletin of U. S. A. Bureau of Labor No. 208) clearly defined, by the International Co-operative Congress, Paris, France, in 1889 as:

"An agreement freely entered into by which the employees received a share, *fixed in advance, of the profits.*"

Profit-sharing plans have long been in operation in Europe, but have not been successful nor popular in this country up to the present century, prior to 1915. It is said that (according to Forster and Dietel, Princeton University, "Employee Stock Ownership in U. S. A.") the total number of plans in operation up to that time did not exceed sixty.—The Illinois Central Railway Co. plan being one of the few shining examples.

After the year 1900 such leading companies as the Pittsburgh Coal Company, National Biscuit Co., Firestone Tire & Rubber Co., U. S. Steel Corporation, Proctor & Gamble Co., began to share profits with employees through transfer of stock. With this remarkable start, and with the still more remarkable growth of sales of stock of public utilities, profit-sharing plans have been in favor ever since.

Such other large companies as DuPont, the International Harvester Co., and Dennison Mfg. Co., set the pace before and during the World War. With the taste of Liberty Bonds, the American public took more freely to profit-sharing plans, and since 1923 such prominent companies as the Radio Corporation of America, the Standard Oil Co. of New York, Bethlehem Steel Corporation, the General Motors Corporation, the United Cigar Stores, the Great Atlantic & Pacific Tea Co., etc. started similar plans.

That, and the phenomenal growth of chain stores—with profit-sharing plans for chain store managers—gave considerable additional momentum to the steadily increasing growth of these plans.

But we must here make a sharp distinction between "employees stock purchase plans" and "executive profit-sharing". The great majority of employees' stock purchase plans have nothing whatsoever to do with executive profit-sharing. In fact, when Professor Balderston, of the University of Pennsylvania, recently investigated 141 American plans, he found only 65 that included "executive" profit-sharing. Nevertheless, the total number of

companies working on such a plan is rapidly growing. So much for the financial incentives for executives.

Non-Financial Incentives for Distribution Executives

The foregoing financial incentives, of course, are extremely important because they seem to appeal to every type of executive imaginable, yet the non-financial incentives at times may be equally effective and very often much less expensive.

To develop and use non-financial incentive plans, there must be a definite promotion and organization scheme, preferably in connection with job analysis. Here the chain stores organizations are certainly setting the pace for the rest of us. They are doing everything they can to use job analysis, and analysis of every single branch, in order to pay their managers as efficiently as possible, according to individual ability. For example, the W. T. Grant Co., uses not only master record cards of key men, but inspectors also visit each store periodically for checking purposes. Furthermore, managers report on assistants according to a regular rating scale; in fact, every single department is recorded as to sales, actual against quota, turnover, mark-down and mark-up, inventory, etc., so that each branch may be compensated very closely in accordance with its own standard. Branch managers and assistants are promoted according to their standing and ability and this is a most powerful incentive.

In addition to such non-financial promotion plans, I might mention, in order to clarify this subject, that on an average, the chain groceries, pay salaries from $20.00 to $35.00 per week, with percentage on gross sales ranging from one-half to two or more per cent, besides prizes for sales of special products.

Drug chain stores pay generally a straight salary, although some chains pay an annual bonus and others a P. M. on all goods or novelties that yield more than the average profit. The Liggett Co. is said to pay a straight salary, plus a share in the *increase* in the *net profits* of each individual store over the previous year, besides cash prize contests.

In the five and ten-cent field, the average is a straight salary plus a per cent of the net profits of the store—the one exception to such a rule is the J. C. Penney Co., each of whose store managers, as you know, has a one-third interest in the store he operates. Note also that the United Cigar Stores Co. which at one

time paid commissions on sales, now is said to work on a straight salary basis.

I believe, however, that in the ordinary company, we need more organization charts and definite promotion plans, so that every executive may know just what is ahead of him. It is human nature to want recognition; we all like to see our accomplishments appreciated and recognized officially. We all like to feel that we are being promoted. Money isn't everything. Responsibility, power, titles, rank, and privileges count.

Let me also call your attention to some very important changes going on at present. If you have studied incentives as I have for the last five, ten or more years, you will note that there are certain changes taking place periodically. When we have a "seller's market" there is one kind of payment; then most companies put their entire force, including executives, on a straight salary basis, simply because the increase in sales and profits, is due to *business conditions,* and not to personal effort. On the other hand, when there is a "buyer's" market, then executives and keymen are put on a commission basis, if possible, or salary and bonus, to make the executives exert their utmost to get sales and increased profits.

But the biggest movement, the big change that is taking place just now, is the change from straight salary, to a profit-sharing plan of some sort. And if you are planning to install some profit-sharing plan, may I caution you regarding several points?

There is a general tendency to under-estimate the importance of the human element and to over-emphasize the mechanical features, such as forms, systems, methods, and, I believe that that is why we do not get maximum results.

Furthermore, incentives depend very often on two things; inside working conditions and outside conditions.

A good example of the first came to my attention just a couple of days ago, when a good friend of mine, a sales executive, prominent in his field, turned down an offer of four times his present income, simply because he did not like to work with certain executives in the other company. He did not believe in their policies, and he could not see where he would get any chance to progress under their direction. So you see, inside conditions have a great deal to do with the carrying out of an incentive plan.

Then, again, outside conditions have a great deal of influence. For example; suppose you set up a commission plan, or profit-

sharing plan, for your executives. Suppose you all get busy. Suppose you stir up the sales organization to a high pitch of activity and double your sales in a month by over-loading your dealers. Is that worth while? Does that pay?

Unless you also provide your distributors with similar incentives, although they might buy and be quite enthusiastic, as they sometimes are, still they might not move the merchandise when there is no demand. Does that pay? Not unless you have a third, and final, incentive for your consumers, so that you get what Mr. Freeman said in his speech, a few minutes ago—"a pull from one side and a push from the other". And how to get the "pull" from the consumer side, I shall explain when we discuss "Incentives for Consumers".

INCENTIVES FOR DISTRIBUTORS

Financial Incentives

Discount—Open or Secret.

In the old days all the incentives we had for dealers were discounts. But discounts today have lost their flavor; and discounts might sometimes increase your sales, but not increase your net profits.

I know, for example, of a company making gas appliances. This company decided a short while ago to change over to distributors and jobbers. To do that they had to offer, of course, an unusual discount because this was the only way in which they could break in. Their sales grew wonderfully and everybody felt happy; but when the controller came around with the profit and loss statement, that presented a different side of the story. The discounts to jobbers had been so large that they cut into profits.

What good was that incentive plan?

Quantity Bonus.

Such incentives are used very frequently, for example, in the cosmetic trade, where often, with every one dozen of shaving cream or face powder, one unit may be given the dealer free of charge, as a special inducement. That is nothing more nor less than price-cutting. It will work temporarily in certain trades, but I do not think it is a sound incentive.

Profit-Sharing Plans By Manufacturers.

This is, of course, one of the more modern and important developments now used successfully by several leading dealers and manufacturers.

The Union Tobacco Co. has a plan which makes jobbers and retailers stockholders in the company. The demand for such a plan came from the tobacco jobbers and retailers themselves, no doubt on account of the small markup. This company then set aside only 300,000 shares of common stock to carry out the plan. For the jobber it was decided that for every $1,000.00 worth of cigarettes, at wholesale price, bought and paid for, he would be granted a credit of $30.00 worth of stock; or one share of stock per $1,000.00 worth of cigarettes.

For the retailer, a warrant for the proper fractional share of stock was packed in each carton of 10 packages. The dealer buying $300.00 worth of goods, received one share of stock through the redemption of these warrants.

The Postum Co. of New York has another type of plan in which the following standards are set up:

1. Guarantee of quality.
2. Guarantee of prices.
3. Guarantee of sales.
4. Guarantee of proper turnover of stock, based on acceptance of purchase plans presented by sales representatives.
5. Guarantee of a single price basis to all customers in the same freight zone.

This plan, as you know, is based on an increase in purchases by the average store, as follows: "If the total gain in a year is 10% to 15%, an extra profit dividend is distributed on the basis of 1% of the total net purchases of the year previous, after deducting 2% cash discount. If the gain is 15% to 20%, a profit dividend of 1½% is given; and if the gain is 20% and over, an extra profit dividend of 2% is given. Note that all stores are expected to stock all Postum goods".

The Van Heusen plan provides the following:

1. If a dealer in 1929 purchases 25% more collars than in 1928, 10% of such increased purchases only, is paid as a cash bonus.

2. If a dealer's 1929 purchases are more than 15%, but less than 25% of 1928 net, 7½% of such increase is paid in cash.

3. If 1929 net purchases are 1% or more, but less than 15% increase over 1928 net, a cash bonus of 5% of such increase is paid.

Such bonus plans, based on increases of the dealers' sales, may not, after all, increase the sales, due to the fact that there is no reward for the sales person selling the collars.

A still newer plan is the 50-50 investment plan, such as the one used by the May Oil Burner Corporation, Baltimore, Md. To be eligible for participation, a dealer must have completed a sales quota for a year, or the six months prior to purchasing. Then he may subscribe for one share of May common stock, for each May Oil Burner sold by him during that period. This stock is to be paid for over a period of three years. During the first year the company will contribute one-half of the payments for that year. The second year the company will set aside a part of its earnings, which it is contemplated will equal in each year at least one-half of that year's payment of the subscription price of the stock.

Whether such a plan, or the plans previously mentioned above, eventually leads into a situation where the distributors may own the parent company, or the parent company may own the distributors, I shall leave to your own imagination, as well as judgment.

Jobbers' Profit-sharing Plan.

Such a plan was in use until a short time ago by the Electric Hose & Rubber Co., Wilmington, Del. It consisted in deducting from net profits for a certain year, a sum equal to 10% of par value of outstanding capital stock. Of the profits remaining 25% was used for profit-sharing with employees, and another 25% was set aside for customers. Distributions to customers were made in the proportion that the total net profits from each customer's business for the year was to the aggregate total net profit made on all such customers' business.

The plan was somewhat successful for four years, but was dropped because, evidently, many jobbers used the profit-sharing plan as an argument to get lower prices from competitors. It was found also somewhat impractical to divide customers into groups, and to share profits with some and not with others. Finally the company found that comparatively few jobbers co-operated wholeheartedly with this company regarding such modern profit-sharing plans.

In talking about financial incentives for distributors, let us not forget another important fact. You can pay your distributors, managers and executives, as much money, and as heavy an incentive as you please or as you can afford, but often in the final analysis, the dealers' clerks are the ones to influence. They can make or break your sales; they are your representatives before the final consumers, and if you do not enthuse them and give them the same courteous and intelligent treatment you give your own sales force, they may kill your extensive sales campaign.

In many trades, premiums or prizes are given to clerks, either by dealers or manufacturers, as well as free entertainment, instructions and education, visits to the factory, gifts, souvenirs, etc., from time to time. They have many items to sell, and require especially intensive cultivation and instruction in the specific selling points of your product.

Non-Financial Incentives for Distributors

Exclusive Territorial Arrangement.

This incentive you all know so well, that it needs no explanation.

Special Consignment, or Warehouse Facilities.

I believe you are all familiar with this point also. In one company a short while ago, the addition of some warehouses, strategically located, almost doubled sales, due to the simple fact that dealers then felt more inclined to place orders with the company when they could get quick service and delivery. Such incentive plans need no proof of their practicability.

Concentration Plan.

Such a concentration plan is sponsored by Wilson Bros., Chicago. Its outcome is very problematical. It is too new and has not had proper time for a conclusive test.

Consumers' Demand—Actual or Promised.

This interesting and intangible incentive is frequently as valuable as all of the previously mentioned put together; not only when working on a prospective dealer campaign, but also with old dealers. Consumer demand is often created by national or local adver-

tising, by high quality of the product, by special uses, by unusual features and selling points. Such created incentives and established demands, practically guarantee re-sale of products. That is why this is such an attractive incentive for distributors. One of the best proofs of this is, that the chain stores recently have begun to handle nationally advertised goods, a method which is said everywhere to be a phenomenal success.

Regarding promised demand, note that in a certain company manufacturing brushing lacquer, a strong local advertising campaign was laid out for the metropolitan city of New York, and almost a thousand new dealers were secured in less than a year as a result.

Again, it seems to make little difference whether we take the cost of certain incentives and add them to the cost of the product, or deduct them from the discount to distributors. For example, the Gillette safety razor blades are sold at an extremely low markup, perhaps a few cents for a small package, and yet dealers accept them readily on account of a steady demand, and sales keep on increasing.

Merchandising Helps.

These consist of all supplementary incentives to stimulate demand and to move merchandise such as:

Free Samples for distribution.

Advertising allowances—or sharing of local advertising expenditures.

Re-sale crews (used, for example, by Hoover Vacuum Cleaner Co.).

Manufacturers or jobbers Service Bureaus (such as, National Cash Register Co.; and Hibbard, Spencer, Bartlett Co.).

Special exhibits, Fairs, Style Shows, etc.

Traveling demonstrators, or at times, salesmen demonstrating.

The usual helps, such as window display, direct mail advertising, etc.

Unusual Selling Features, Actual or Created.

The best way to illustrate this is to give you an example. In one company manufacturing ladies' underwear, there was found a lack of demand on the dealers' part and, as a result, constantly diminishing sales and net profits. After a careful analysis, a slightly

different product was designed, a French name was secured from a French designer by payment of a few thousand francs, was played up in local advertising and proved so popular that sales were doubled in less than eight months.

Good Will, As An Incentive.

In this connection I should also like to call your attention to the importance played by the term "good will", either inherent or created. Note, for example, that it is said that the Graybar Electric Co. spent last year over one million dollars to advertise its name, to establish good will and to create a demand for its products, now distributed under the new name. It is believed that such an incentive of a million dollars is well spent and will prove a profitable investment.

Concluding this section on Incentives for Distributors, may I draw your attention to the modern changes. One of these changes is important. It is a change, or a "shift", from applying incentives to the personnel of the organization, to applying the same or similar incentives, or applying the same amount of money in different incentives directly to distributors. Again, may I illustrate, by stating the case of a manufacturer of cosmetics, who, the last few years, gradually has called all of his salesmen off the road, and has spent approximately the same amount of money on creating national demand (by national and local advertising), and on discount and price reductions to his distributors, all with the result that his sales have been steadily increasing at a lower cost, and with increased profits.

Regardless of the threat of syndicates, mergers and chain organizations, and similar modern merchandising methods, no doubt caused, in part, by the possible reductions in distribution costs, I believe that we are going to see more such remarkable changes in incentive methods in the near future than we have in the past, perhaps due to the more intense competition we have today which makes us analyze every penny spent for distribution.

Mutual Incentives.

In discussing chains and mergers, permit me to digress for a moment, by calling your attention to the distribution incentive plan inaugurated in 1928 by the Beechnut Packing Co., and the United Cigar Stores Co. According to this plan, the United ob-

tained some fifty thousand shares of common stock at about $50.00 per share, in consideration of which, it is said, it practically guaranteed to promote the sales of the Beechnut confection in United stores. And within a short time, the manufacturers of Life-Savers, Beechnut's competitors, made a deal of the same nature with a similar organization. The main reason for this arrangement was, evidently, control of distribution and to provide for a mutual incentive between manufacturer and distributor. Note that, theoretically, Beechnut could have secured $750,000.00 more from bankers for this stock. The question remains, could they have spent this amount of money with better results in national advertising for the benefit of all of their outlets, than they did by receiving the guarantee of automatic demand in some three thousand stores of the United? No doubt, there was a powerful incentive for such a distribution plan, or it would not have been consummated.

INCENTIVES FOR CONSUMERS

Financial

While your distributors may be enthusiastic about your products, you still have to provide some important incentives for your consumers to move merchandise at a profit. Many ask me "how can you give an incentive to consumers? It isn't being done".

It is, and I am going to give you a number of such methods.

The Club and Bonus, or Premium Plan.

The best example of such a plan is the Larkin Company plan. Around the year 1880 Mr. Elbert Hubbard conceived the idea of giving away as a premium, some silver spoons of Rogers' with every $10.00 box of soap purchased through this company. A group of women organized and pooled their purchases, to get the spoons. From this small beginning has grown, based on this plan, an organization whose sales run between $30,000,000.00 and $40,000,000.00 a year. At the present time, this company is said to have some 80,000 "secretaries", each with a group of five or more purchase-consumers. The "secretary" gets a reward in coupons to the "merchandise amount" of $12.50 per $50.00 purchases. Note that some of the prices in the catalogues conform very closely to those of the chain stores, yet others are found slightly higher. This has no serious effect on the sales because of the coupon system.

In other words, a housewife can save up coupons and thus buy certain things which she may need in the home, where she might not otherwise have the money to purchase such goods. The success of this plan is assured. It has a wide following, especially in industrial towns where "saving and thrift" are watchwords.

Straight Premiums.

Such incentives may be in cash or merchandise, such as, for example, are given with purchases in grocery stores and department stores. H & H Green Stamps, coupons (United Cigar Stores), a set of dishes with a stove, $25.00 for your old radio, are good examples of this method.

Profit-Sharing Plan for Consumers.

Such a plan was launched a few years ago by the Commonwealth Press, Chicago, and provided that all excess profits, above 6%, were to be distributed among consumers buying more than $250.00 worth of printing for three months, according to amount of purchases. This plan, however, was discontinued this year on account of competition, and the "lukewarm" acceptance by consumers.

Reduced Prices.

Such incentives are, generally, lowered prices, such as used during "Fire Sales"; special close-outs; cut-rate sales; or due to "self-service" such as created by store plans employed by Piggly-Wiggly, and other chain stores. Many of these have proven quite successful.

Quantity Purchases, Discounts.

Such incentives may be created by advertising quantity sales or special sales, such as the Rexall One-Cent Sales; "Three Collars for $1.00" Sale; combination packages; Dollar Day Sales, etc.

Club Sales with Premiums.

The well-known "Club Aluminum" plan has proven that such incentives may be successful.

Special Deals.

Such incentive plans are in extensive use, especially in the cosmetic trade, where a bottle of after-shaving lotion is given free

with a tube of shaving cream, or a bottle of perfume with a box of face powder, etc.

Commission for Leads Secured from other Consumers.

Such plans are in extensive use by some automobile distributors who offer $5.00 to $20.00 cash for leads that are closed, supplied by regular customers. A similar plan has been used with washing machines and vacuum cleaners with success.

Installment Plan to Facilitate Payments.

You are all familiar with the increased sales made by installments in all lines of manufacture, hence I shall not spend much time on this point. It has been proven to us; but may I show you just one or two examples of what incentives of this type may accomplish?

I was talking recently with a distributor of a well-known refrigerator who told me, and showed me, that during the first four days of June of this year, he had sold as many refrigerators as during the entire month of June the previous year, due to the introduction of a liberal installment plan.

Only a few days ago I was discussing this important point with the sales manager of a Public Utilities Company in the northeast. His department had sold 200 refrigerators in 1928; by June 1st this year, he had sold 336; this remarkable increase was due solely to the fact that last year he sold refrigerators on the basis of 25% down, and a year to pay, whereas, this year they were being sold on the basis of $10.00 down and thirty months to pay.

Here you have proof enough of the efficiency of a popular incentive plan for consumers.

Prize Contests for Consumers.

Such contests are frequently advertised in the national magazines and undoubtedly you are all familiar with them. The largest one today I believe, and the one which is best known at the present time, is the Eastman Kodak $25,000.00 Contest which is running now, and which is being watched with a great deal of interest. Other contests along this line are very effective.

Non-Financial Incentives for Consumers

While such incentives are more intangible and difficult to trace, yet we have constant evidence that they pay. The great majority

of non-financial incentives are promoted by advertising, crystallizing the potential demand by kindling our dormant desires, and by stirring consumers to action and making them buy and pay the price.

Purchase Appeals, and Buying Motives.

By far the most powerful incentives are the imaginary or real features created either by the product itself, or by its use, and exploited by the distributor, by the salesmen and by advertising, which will make consumers voluntarily buy more of your products, without any apparent effort on your part.

I believe here is a point which we often overlook, but it is true that the most economical incentive, just as the least expensive publicity, is the direct word-of-mouth enthusiasm spread around by satisfied consumers. Not only that, but the play on our emotions (done directly or indirectly) is a very powerful incentive, in that we are made to feel that by purchasing certain products, or services, we are "keeping up with the Joneses". In other words, we are made, or automatically become "salesmen" for certain products through our pride and vanity, and that helps to increase sales at minimum expenses.

It looks to me as if, in the near future, we are going to pay more and more attention to our research departments, and to develop those special features of the product or service which make for automatic demand, and, therefore, for increased net profits. Such demand may be established through incentives commonly known as "purchase appeals" such as creation of style, beauty, color, utility (sometimes with an implied guarantee as often understood, or assumed, by the average consumer, that whatever is advertised nationally is carrying a guarantee of quality to the consumer), value, sometimes price, and certainly always appearance.

Consumer Helps.

Remember that we referred briefly to this in the previous section. But let us remember that consumer helps, whether applied directly to consumers, in their homes or at the business places of distributors, form a very powerful incentive. For example, demonstrations, such as used with vacuum cleaners and washing machines —often sent on approval—are very effective. Also demonstrations, usually tried out through "schools" such as cooking schools, sew-

ing schools, dressmaking schools; or the offer of free educational literature, such as recipe booklets, household hints, and what-not, all attract customers and certainly help to build sales at a very low expense.

Space does not permit the enumeration of dozens of effective non-financial incentives for consumers. Almost every company uses some, in one form or another.

Summary

Considering now the cost and results of incentives applied, let us illustrate this with at least one case. In one company manufacturing and distributing plumbing and heating apparatus, years ago there was practically no thought about incentives in distribution. When this company started some years ago, it was small. Then it gradually established branches and increased sales. Branch managers were first paid on a salary basis, but this incentive proved insufficient. They were then paid on a commission scale, which, due to a "boom", drove the income of branch managers way out of reason. A new plan was then instituted, of salary and bonus, which was successful from the start, in that it practically doubled sales. Then some years later, this company changed the distribution method from selling to dealers, to selling to jobbers as well as to dealers, and again increased sales. Considerable service work was rendered free of charge to jobbers and dealers, as well as sales promotion work, with several incentive plans for both dealers and jobbers. This naturally had its constructive effect. Finally this company put into motion an installment plan for consumers, and about the same time launched a national advertising campaign to educate the public to the use of its products. As a result, the total sales have grown in a few years from a small beginning of five or six million dollars, to almost $100,000,000.00 per year.

What was the price? This company paid about three to four million dollars for all of the incentives above mentioned; but note that their profits have gone up from between three to four million dollars per year ten years ago, to about $12,000,000.00 last year, accredited partly to standardization and manufacturing economies, but mostly to distribution incentives.

So we see, incentives applied in the right way, in the right place and at the right time, pay heavy dividends.

If we are organizing to increase our profits, it behooves us to study incentives, through the entire chain from factory to consumer, regardless of where they are to be applied, regardless of where we are going to use the money—for executives—for distributors, or to create automatic demand from the consumers, or a combination method—do not be afraid of spending the money—the market is there and the possibilities are there, and it is our job, as distribution executives, to move merchandise at a profit. This we can do better with the help of you accountants than without it.

CHAIRMAN HAYES: Edmond S. La Rose is going to summarize the session for us.

EDMOND S. LA ROSE (Asst. to Comptroller *Bausch & Lomb Optical Co., Rochester, N. Y.*): The two subjects submitted this morning perhaps cover the best known financial means, through wage incentives, of maintaining both a gross and net operating profit. While in many instances a gross profit is being created, there is every opportunity offered through wage incentives, spread both directly and indirectly, to increase such gross profit. However a great many companies which have earned their gross profit have had it annihilated subsequently through lack of control of distribution and its relative costs. Selling incentives are known to stimulate volume, but increased volume is of no consequence unless it is profitable.

Are various profitable products covering the loss of non-profitable ones? Are many of the various districts being supported from the return of others? Are branches obtaining their share or could some or all of them be entirely eliminated? Many other questions might be submitted readily if time permitted, but the final question to you would be—Have you presented your executives with facts for the proper control of their business?

Perhaps the one and outstanding non-financial incentive used in industry in recent years has been that of the budget. Therefore, it is fully believed that the adaptation of these financial incentives to a budget, which is comprehensively prepared and properly coordinated to cover all of the divisions of a business, will act not only as a goal, but will control the business in a profitable manner.

Our company is now in its third year in the use of complete

budgetary control. Goals were set, then sought, and were actually made. Business had been below normal for some few years. But, as a result of the use of a budget, first superimposed by good management and then assisted by a complete development of facts; by the segregation of the field into territories, districts and foreign countries; by knowing whether it was profitable to place a salesman or a branch in any definite territory or district; by analyzing the manufacture and sale of profitable and non-profitable articles; by teaching the salesmen what and what not to sell; by the creation of incentives throughout the plant; by the creation of straight line production offset by a variable inventory, whereby labor improved on the basis of turn-over, skill, and good-will; and by many other such methods of control; results heretofore unknown, took place in the business.

Briefly a sales increase of 20% took place in 1928 and an increase of 22% is indicated in 1929, to date, over 1928. Above all, earnings were created and maintained which enabled the paying of the first Common dividends in some few years since the war. Therefore, it is not only a duty but an opportunity for the men in the N. A. C. A. to become familiar with the modern presentation of facts that will be an aid to management in making business profitable.

CHAIRMAN HAYES: We have time for a few questions before I turn this remarkable session over to Mr. Jordan—I say remarkable because I don't believe any of you men have left.

If there are no questions, I will now turn the session over to Mr. Jordan, who will make our summary.

MR. JORDAN: I haven't anything further to say. I am happy again.

You heard from both of the papers as to the necessity of working as partners in business and that your jobs in charge of accounts are only just starting when you make out your statements. You have had opened to you today, as you have in the past, a wonderful field that really has not been touched by all you men who are responsible for the figures and for the business.

Don't say you are not a sales manager. Don't say you are not a manufacturing manager. You are just what you are but you can have a much wider scope if you will only hook your arms

into those of the sales manager and the manufacturing manager and only consider your job started when you get out your statement. Save some of the time you spend with red ink making up forms and that sort of thing and get into interpretation of these figures and the uses of these figures, and your job will broaden out to where you will become infinitely more valuable to the business.

I am happy over this session. This afternoon we are going to cull this over and get a conclusion along the line of the old-fashioned revival meeting. Seven men will talk for ten minutes. You will have proven to you that there is money in organizing for profit; it is not a fancy subject; it is a practical subject. It is exactly what we are in business for.

SESSION VI

ADMINISTERING THE BUSINESS FOR PROFIT

THURSDAY AFTERNOON, JUNE 20, 1929

This Session Was Organized Under the Direction of

ARTHUR H. CARTER

Haskins & Sells, New York City

HARRY A. BULLIS is a graduate of the University of Wisconsin and has taken additional work at the University of London and the University of Minnesota. He has been connected with the flour milling industry for a number of years, first as Controller of the Washburn-Crosby Company and now as Secretary and Controller of the General Mills, Inc., Minneapolis. He is the author of "The Profit Trend in Industry", issued as a part of the 1928 Year Book of our Association, and just been elected a Vice-President of the Association, following several years' service as a director. He is a member of the American Economic Association and the American Statistical Association.

LEWIS D. CRUSOE went with the Fisher Body Corporation in 1915, soon after his graduation from the University of Wisconsin. He has been taking additional work at the University of Detroit and took his Bachelor of Science in Commerce Degree there in 1919. He is in charge of cost accounting for the Fisher Body Corporation at the present time. He is a National Director of the Association.

ARTHUR W. BASS has long been affiliated with the National Association of Cost Accountants, and is now a member of the National Board of Directors. From 1905 to 1912 he was Secretary and Auditor of the Webster Manufacturing Co., Tiffin, Ohio, and since 1912 has been with the Westinghouse Electric and Manufacturing Co., and now serves that organization in the position of Assistant to the Vice-President.

C. WALTER COAPMAN is another member of long standing in the Association, and has served on the National Board. He entered the employ of the North East Electric Company following his graduation from the West High School of Rochester, and is at present the Comptroller of that organization.

THOMAS B. FRANK followed his high school days at South Bend, Indiana, with studies in accounting with the La Salle Extension University in Chicago. From 1920–1922 he was engaged in public practice, and in October of the latter year became affiliated with the Cincinnati Planer Company, and is now Treasurer of that organization. He has been actively interested in the cost accounting work of the National Machine Tool Builders Association, and has served our Association as Director in Charge of Membership for the past two years.

M. M. MONROE is a native of the State of Ohio and had his accounting training with the Walton School of Commerce and the Extension Division of the Ohio State University. Following his graduation from high school, he was connected with various organizations in and around Dayton, Ohio, and has been with the Inland Manufacturing Company since 1922. He now holds the position of Resident Comptroller of that organization.

V. W. COLLINS followed his high school course by a short period of training in a business college in Rome, N. Y. He spent five years with the Rome Metallic Bed Co. in cost work, and has been with the Rome Wire Company for the past several years. Shortly after the Convention at West Baden he received the news that he had been elected Treasurer of that organization. He has been a member of the National Board of Directors for the past four years.

ADMINISTERING THE BUSINESS FOR PROFIT

PRESIDENT SWEETSER: In this closing session we are going to hear some testimony from men who have had some practical experience with the things about which we have been talking. We have tried in this convention to make the quality of our activities a little more educational, to try to build men into the possibilities that exist, and we believe the idea has gone over to a good many men.

In this final session it was originally proposed that Arthur H. Carter of Haskins and Sells should be in charge. However, he was obliged to go to Europe, so Mr. Jordan has agreed to be the chairman of this meeting. It gives me great pleasure to turn over to him the final session of this convention.

MR. JORDAN: I have nothing to say this afternoon except that we have gone through the five steps for whatever they may have brought out. I will say a little more about that at the end. We will go right into the afternoon's work. We have selected seven rapid-fire speakers who will talk for ten minutes each, which will take less time than two of the usual papers and leave a little time for final quarreling. Then we will pronounce the benediction.

The idea of this afternoon's session is to bring in some evidence or testimony along the line of our service. You fellows don't know what that means but if you were a Baptist minister's son and had to go to services every week, you would know.

We have selected a small fellow to start off this afternoon. I want to introduce our good friend, Bullis, from Minneapolis.

HARRY A. BULLIS

Secretary and Comptroller, General Mills, Inc. Minneapolis, Minn.

The keynote of this convention is: "Tune up all factors to the making of profits". "Tuning up" means working in harmony;

working in unison. To be out of tune is to be out of harmony. The major aim of every successful business man always has been the making of profits. In order to accomplish this major aim, he endeavors to secure a large output at a low cost. To secure this large output at a low cost, he must have, first, loyal, willing, and efficient employees who are working as a coördinate unit; and, second, he must have the facts about his business. If the business man is to "tune up" all factors of his business to his major aim of making profits, he must not over-emphasize his desire for large output to the point where he does not secure satisfactory prices; neither must he allow his desire for production at a low cost to prevent him from paying his employees a remuneration sufficient to insure loyalty and efficiency, or to cause him to fail to spend enough to collect the necessary facts concerning his business. In other words, the methods of the business man must be "tuned up" and balanced to the major aim of making of profits. Three things which the profit-making business man should emphasize are (1) training, (2) management, and (3) morale.

Training.

In every enterprise everyone, from the executives down, needs training. We train to play games, so why shouldn't we train for business? The usual thought about training is that it is always the other fellow who should be trained; on the contrary there should be an all-around training for everyone.

The man at the top should be trained whenever necessary. He should be taught to use records in the management of his business, because inefficiency is usually caused by inability to use the information at hand. To have good records and not use them is like having a fire in the furnace on a cold night without turning on the radiator.

The accountant should be trained to point out where things should be changed rather than always to be following slowly along after the changes have been made. In his attempt to standardize forms and records, the accountant may try to copy the fairly good system rather than the perfect system. Conditions in business are altering constantly and accounting records must be kept abreast of the times. Accounting systems must be adapted to the conditions they seek to control.

Everyone in all branches of a business should realize that its present plans can be carried out much better than they are now being carried out, and each one should enter into training to accomplish the most in the shortest time by the most efficient use of his mental and physical energy.

People should be trained to do the things that they are fitted to do,—the things that they can do best. Then they will be working with a minimum of wasted energy and will be started on the way to success. We all know that success is doing our best work in the easiest way while enjoying the greatest amount of happiness. One of the things we should all do is to "work easily".

The accountant has the greatest opportunity for training in any business enterprise, because he is constantly studying its records. These records are the effects of certain causes. Change the cause, and the effect is changed. If the accountant uses his head, and really wants to "tune up" to the making of profits, he can reason from the effect to the cause and know more about the business than those in high executive positions. One's business is not an enemy to conquer, but a friend to know and understand.

Management.

Management is the guiding force in business. When we speak of "management" we recognize the fact that power and knowledge are two different things. We must have power to order things done. Power, however, does not always furnish the knowledge of the best way of doing these things. The officers and managers of a business should be selected not because they have wealth, but because they have the knowledge of the best way to get things done. The right to lose one's own wealth is a very different thing from the right to lose the investments of many stockholders. Capital has a right to earn a good rate of interest because it is risking money in the business. It should seek to employ the most competent men as managers. Many enterprises are weak in the matter of good officers and managers.

The leaders of an enterprise not only must be grounded in the principles of good management, but, in addition to a thorough knowledge of the business, should also understand human nature. They should be capable of inspiring employees who might otherwise become stale workers,—especially salesmen who come into con-

tact with the firm's customers. No one does his best unless he gets some kind of inspiration. We are all more or less like an automobile tire. We need "pumping up" at the end of a long run.

The modern accountant is one of the greatest aids to proper management because he is taking the guess work out of business by furnishing facts promptly, and is thus allowing the man at the head to exercise vision and courage to see that all are treated fairly and squarely, and to coördinate all efforts towards the making of profits.

"Action" is the modern watchword in business. The accountant must "step-up" his work to this action, widen his fields, and get into the sweep of the economic forces operating in his business. Many of the men who will be leaders of large enterprises within the next few years are now intelligently working in the accounting departments of those businesses.

Morale.

Often the most important factors are those you cannot see. The magic of the radio is not in the box nor in the cabinet; it is in the energy that sends the messages through the air. An electric light bulb without the current turned on is of no use in a dark room. The most important thing about a business is its spirit, its morale, —the "spark" that makes it go.

If the morale is right, a great many things follow as a matter of course. Morale is achieved along the line of proper training which teaches employees how to advance by the utilization of the best that is in them, by the building up of confidence in the management, and by the development of the right frame of mind in each and every one.

The leaders should endeavor to find out the thoughts passing through the minds of the employees of the company and try to direct these thoughts into the most useful and optimistic channels. It is essential that the general body of employees feel that they must be true to their leaders, and that they believe in the wisdom of the leaders' plans. The leaders, of course, must be strong enough to merit such a feeling. They must regard every occupation from a high plane, because the higher the plane, the more inspiration there is to turning out the best possible work.

We all need to find our best selves, to think positive thoughts, and to have faith in our business. When we reach the point where

we are working for someone who is worth working for, in a worthwhile company, doing something worth doing,—then, there is a real force behind us. A captain of industry coördinates and welds what would otherwise be an unorganized mob into a trained army, and develops in that army a spirit which perpetuates itself after the individuals in the army have passed on. Just as the legends of a military regiment are its most potent inspiration, so the spirit of a business enterprise is its greatest motivating force.

The morale of a business is more important than any other one thing. On one of the great highways leading out of my city of Minneapolis are road signs which read "Straight On". The legend points the traveler's way to a certain goal. Are you wondering how you are going to "tune up" to the making of profits? Go straight on! Have you caught a vision during this convention? Keep your vision, launch out, trust your own thoughts, and go "Straight On".

CHAIRMAN JORDAN: I told you we got good stuff out of small packages—and you know, Mr. Bullis is connected with a pretty hard old industry, too, that is, the flour industry. As you all know, he is with the General Mills, Incorporated, of Minneapolis.

Now we are going to hear from another small company. In fact, we have two from that small company but the next speaker is Lewis D. Crusoe of the Fisher Body Company—you may have heard of that little company.

L. D. Crusoe

Supervisor of Cost Accounting, Fisher Body Company, Detroit, Michigan.

I can't say exactly that I have had this speech "on ice". I have written down a few things that struck me at these meetings. It will take me just six minutes to get this over with.

In the first place, I have no apologies for cost accounting. It must be a part and parcel of every successful enterprise. I think that the time has arrived for cost accountants to stop "wolfing", if you please, and pin a rightful portion of the blame for non-use of cost records on our production management.

Cost accounting has made such rapid strides in the past few years that the need now is not for additional cost systems but for more careful consideration of the capabilities of the shop men to use figures and remedial education to the end of getting more results from the cost reducing machinery that we now have. There will be no new formula which will automatically reduce costs. Let's begin to disillusion the shop man who is waiting for us to develop some new "open Sesame" which will disclose to him all the ills of the shop. Let's dedicate the next five years to teaching the shop man how to use the information now readily obtainable under almost all cost systems.

I cannot conceive of any reason why a cost department should exist if it does not contribute substantially to the profits of its company. In our business we consider the cost department as a service department with the production end as our customers. We try to take care of these customers by satisfying their demands for information, by giving them the kind of figures that pay their keep and developing new figures to give them the information which in our experience they can use most effectively.

We find it difficult to satisfy the insatiable appetites of our men for figures and at the same time keep to the front the fact that figures themselves will not reduce costs unless they are put to work. The supply of figures must be carefully balanced with the ability of your shop organization to assimilate them.

In the Fisher organization we take advantage of what is, I believe, our unique position in having many self-contained, geographically separated manufacturing units. We compare the operation of each one of these plants and make the operating results available to all plants. So the fountainhead of our shop economy programs, in which the cost department acts as a neutral agent is in reporting the facts by comparative analyses of operating costs in each plant. We find out exactly what each plant gets for the money it spends, whether the item be direct material, direct labor, or overhead, and it is our experience that those phases of our business to which we have given the greatest publicity in respect of the dissemination of cost reports are the most successful lines of our work.

We believe that fact proves conclusively that you must put all your cards on the table and keep them there. Situations are not reported as unsatisfactory unless the remedy is at hand of more

successful accomplishment of that particular activity in some other plant or department. We have put the shoe on the other foot, so to speak, and do not look for the bad things in our shop but look for the good things in each department and make them available to all. In this way, by a consolidation and composition of the best methods we discover in all of our plants, we arrive at a low net cost. On a conservative estimate twenty-five per cent of the cost of operating our cost department is devoted to determining profit and loss. The balance, or seventy-five per cent, is devoted to determining what our profits should be and developing operation analyses and timely reports, whether daily, weekly, or monthly, to assist our manufacturing end to make the profits we think should be in the job.

The men on the firing line are the foremen. They must be furnished with the right kind of figures but above all, they must be properly trained in their use if they are to be effective. Make certain that you give only the essential information, that which is readily usable.

I want to compare the information that is sometimes doled out to shop foremen in such quantities that they can't assimilate it with the experience of a young man who had made a round of the night clubs and didn't carry his soda water very well. He wandered around until he was completely befuddled and asked a policeman where he was. The policeman carefully and painstakingly pointed out that he was at the corner of Woodward and Elizabeth, just three blocks from the Statler Hotel. The man said, "You would be that way—why go into detail—what country is it?"

MR. JORDAN: We will now hear from a representative of another little company. You all know this man very well. He is an American; we are sure of that because of the color of his skin. You can always be sure of the Indian type so we are sure he is a straight American.

Somebody spoke a while ago about radio. This particular gentleman has for quite a long time been the principal assistant to the father of all the broadcasting you get. H. P. Davis of the Westinghouse Electric is the one who put "KDKA" on the air. This gentleman has been his assistant. It is with pleasure that we will hear from A. W. Bass of the Westinghouse Electric and Manufacturing Company.

A. W. Bass

Asst. to Vice-president, Westinghouse Electric and Manufacturing Company, Pittsburgh, Pa.

As we enter this final session of the convention, I have a feeling as though the tumult and shouting had died—departed are the captains and kings and we gather in a half daze to find out what it's all about.

Those of you who didn't live on the golf links have listened, during the last few days, to a series of steps which represent the most pretentious program of business organization which I believe has ever been attempted at any convention. The program may sound somewhat staggering and complicated and the Chairman in charge of this session ran into some difficulty in securing an outstanding person to round up the subject and give it the final polish which would make it both understandable and attractive to you. President Hoover admitted it was too deep for him and he preferred Farm Relief. Henry Ford didn't sympathize much with the emphasis on profits in industrial operations, and Lindbergh couldn't be found. Accordingly, the Chairman decided that after all it might be only courteous to turn the job over to various members of this Association who were bursting with knowledge on the subject and so about 10 days ago a few of us were asked to tell you in 10 minute talks how the application of the ideas outlined at this convention has placed the stocks of the companies we represent beyond the reach of the ordinary investor. So, for the sake of you golfers who didn't tune in and also for those who were here, but grew a bit drowsy after a good breakfast or luncheon, I will give you my interpretation of what it was all about.

The steps outlined in the sessions are after all not so very different from those which many of you have been taking when you attempted to secure improved efficiency in some individual manufacturing operation.

Let us assume a minor assembly operation in a manufacturing department which we desire to place on a more efficient basis, or, in terms of the theme of this convention, organize for greater profit.

Our first step would be to review the personnel responsible for the operation. This might be an individual workman or it might be an assembly operation in which coöperative effort was very

desirable in which case the responsibility for the operation might rest with a group of workmen.

Having determined the person or persons responsible for the operation, we next see to it that our accounting, which, in this case would be our timekeeping, is so set up as to report properly to us the essential facts connected with that particular operation, viz., the time consumed and the quantity produced.

Having these facts before us, our next interest is the determining of some measurement or standard by which we can assure ourselves that the actual performance is what we should reasonably expect, but before setting this standard we must make a careful review of the methods followed and assure ourselves that the standard has not been established on a method which is basically inefficient.

With our methods properly studied and standards set, we next turn attention to the providing of some stimulus which will induce the workman to meet that standard, this stimulus usually taking the form of a bonus under one of the many varieties of incentive wage payment.

In this relatively simple illustration of the steps which many of you take, whether consciously or unconsciously, in securing an improved showing on an individual manufacturing operation we have a parallel with the procedure which has been outlined in this week's sessions as applicable to the study and improvement of the more general operating conditions of a company. This session is intended to serve as a sort of experience meeting in which you will be told some concrete results of the adoption of these several steps.

I wish I were in a position to paint such a picture for you, as applied to the entire operations of our company, but the program to which you have listened represents an advanced stage of management which still stands more as a goal than as an attainment with the large majority of concerns and in the larger organizations the reaching of the goal is of necessity a rather slow process.

Speaking from the standpoint of the manufacturing organization with which I am connected, we have recognized and used standards for many years. I refer particularly to time standards for manufacturing operations, expense standards for factory overheads and, more recently, price standards on raw materials. While the use made of these standards easily justified their adoption, it was

only in recent years that we began to sense a broader and better organized use which could be made of them in the creation of a higher type of cost data and of equal importance, a supply of operating data for the guidance of manufacturing supervisors, such as had not been attainable under previous methods. So about four years ago we began a serious study along the line of marshalling these individual cost standards into a standard cost system. Installations were started in five of our smaller plants and besides creating a class of costs much more satisfactory to our designing engineers and sales people, we began developing thru our statements of cost variances operating data which made an instant appeal to the more progressive of our shop heads. This work was greatly accelerated and also carried on to a further stage of advancement within the last two years by employing the services of a firm of management engineers.

The combination of intelligently presented operating data, together with the pride of accomplishment which can be counted on with most men who have risen to supervisory positions will usually result in a fairly high level of attainment, but the man in a supervisory position is in fundamental make-up not so different from the manual worker as to justify our withholding from him the final stimulus which has become so generally adopted with the shop workmen.

So about six months ago, under the guidance of these outside experts, we began the application of a bonus incentive to the shop supervisors of two of our plants. I have kept rather closely in touch with the results in the one of these plants which promises to develop the best form of application for our other plants and these results are, to say the least, interesting.

The bonus standards were set at a level which demanded a perceptible improvement over previous accomplishment in both labor efficiency and expense control, before any bonus would be earned. This was partially evidenced by the fact that during the first month the penalties against future bonuses which accumulated in many of the departments more than offset the bonuses earned in others. This situation rapidly changed, however, in the succeeding months and the average bonus earnings are already amounting to 15%. There is every evidence that these bonuses will continue to increase for a time at least, but since they represent only a portion of cost reductions actually accomplished the size

of the ultimate bonus can hardly have an adverse effect on company profits.

Six months is too short a time on which to base any final conclusions regarding the merits of our present organization layout, basic standards and bonus structure, but, while some weaknesses may develop in these various parts of the mechanism, they can be dealt with as they arise. The item of importance at present is that we are well under way on a thoroughly coördinated program of business organization which already seems to be bearing fruit.

Just in closing, I should like to say that, while immediate increase in company profits and in employees' earnings might be considered a sizable accomplishment in themselves, I believe I see another factor which will later develop into an asset of appreciable value. The various supervisors seem to be developing a new sense of the value of coöperative effort. A certain pooling feature of the bonus plan is carrying their interests beyond the confines of their individual departments. In short, I think I see developing a broader outlook on their problems and a business sense which should make itself felt in the years to come.

CHAIRMAN JORDAN: We have another old friend here whom you all know. He is quite well known for following up all the chapters on publicity work. He is a great fellow for that. He likes to advertise the National Association of Cost Accountants. He is also in the electric business. We selected these high speed automobile and electric workers to get the power. So now we will hear from our old friend, C. Walter Coapman of the North East Electric Company at Rochester.

C. WALTER COAPMAN

Comptroller, North East Electric Company, Rochester, N. Y.

We are to talk this afternoon about administering a business for profit. The preceding sessions of this conference have covered the plans and methods essential for conducting business for the purpose of profit. The opening session, "Setting Up an Organization", indicated the necessity for a proper organization so as to allocate responsibilities. The sessions on "Setting Up Records" indicated the various records that should be kept for the entire organization—manufacturing, sales and accounting. The session

on "Setting the Standards" brought to your attention actual examples of standards that have been of great value for both manufacturing and the sales divisions. At this morning's session we discussed the advantages of incentive plans for the sales force and also for executives and key men.

These sessions have furnished ideals for which we should strive. However, it is not always possible to change our organizations in accordance with the plans which have been discussed. Nevertheless, it is essential that we continue to operate our business on a profitable basis. In this connection I well remember a definition of the purpose of business as given by Mr. Walsh of the Detroit Chapter, in which he stated that "the primary object of business is to make a profit". That definition is well worth remembering and using as a rule for making decisions on the many varied problems that we are confronted with daily in the operation of a business.

"The primary object of business is to make a profit." Many definitions have been given of the word, "profit", but in our discussion we will consider that profit is the difference between our selling prices and our total cost.

In these days of narrowing margins and increasing competition, it is more difficult than ever to "administer the business for profit", but it is by no means impossible, and, even though margins are decreasing in most lines of business I do not consider this to be a detriment to business but, on the contrary, a challenge to American business men. Such challenges are not new in our national economic life. We have overcome similar problems before. We ought to be able to overcome them again.

Present competitive conditions will require that American business men, and you men in particular, search out new methods of conducting business, and in the long run this competition should prove to be advantageous to all. Competition and prosperity are compatible factors and not antagonistic forces, and even under keenly competitive conditions there can be substantial business prosperity.

During this conference you have heard many new plans and methods discussed, all by men who have had actual experience in the particular phase of business they have talked upon, but in themselves these plans and methods mean nothing because no system, no plan, no organization set-up, can ever be a substitute for

executive ability. No system or systems can ever replace brain power needed to man a business. When any business attempts to solve problems with system instead of with knowledge and experience, it is generally the beginning of the end. On the other hand, executive ability alone, without system and records, means chaos and inefficiency and, likewise, cost systems and other records, without executive ability, are of no great value.

As I said before, many of us do not have the ideal set-ups in our organizations such as have been outlined to you during this convention but, even without the ideal set-up, it is generally possible to "administer business for profit", provided that a happy combination is made of executive ability as well as cost and other records. We must adapt the plans and methods presented here to our own organizations and work out our own methods of organizing our business for profit.

I have been asked to speak specifically of our experience and plans in "administering business for profit" but, inasmuch as it would be impossible in the brief time allotted to tell of all our plans and experiences, it seemed to me that possibly you would be interested more in a detailed explanation of one or two of the actual methods which have proven successful.

First, let me tell you of our experience in building up the sale of service parts and by service parts in the automobile industry, of which our firm is a manufacturer of electrical accessories, such as starting, lighting, and ignition, speedometers and horns, we mean the parts that are subject to wear and, therefore, need to be replaced, as well as the many other parts that for one reason or another also have to be replaced.

I can recall that not so many years ago the matter of service parts in our business was considered a necessary evil and expense and was compared to that of an undertaker, that is, we had to wait for the equipment to die. To a certain extent that condition still exists, except that we have recognized the fact that service parts are required and, therefore, our business is to have our own genuine parts available and near at hand for the car owner when that condition does arise. Contrary to popular opinion we have keen competition in the sale of service parts from the manufacturer of imitation parts, who selects a few of the most profitable items and concentrates on them.

One of the principal requirements in "administering a business

for profit'' is the use of records that are available or can be made available as need arises and in this particular phase of our business we developed sales figures that were used as a basis for sales quotas that have contributed much toward the building up of our service parts business and thereby increased our profits.

As the basis of these quotas we selected over three hundred cities in connection with governmental and market agency studies as representing logical distributing points. The areas around these centers are grouped on the basis of where the normal influence of the trading center is felt. Our distributors operate over like areas. On each of these trading areas and divisions of trading areas we have compiled car registrations and distribution figures which make possible an accurate setting of parts quotas. Due consideration has been given to accessibility, seasonal influence, buying habits, and local conditions.

Primarily our service parts quotas are based upon the number of North East equipped cars registered in a given area but, inasmuch as some cars are only partially North East equipped, such as speedometer only, an additional refinement has been introduced. A special record of all car registrations by territories, with the type of complete or partial equipment used, is kept. The value of each piece of equipment, speedometer, ignition, generator, and so forth, as a potential parts market is known. Parts quotas for our distributors include this refinement of a quota value for each item of our equipment on all car registrations.

The volume of our parts sales is so large and varied in nature that an additional refinement of the information is found desirable in the form of our purchase record card, which we maintain for each distributing area. Here we split our total parts into groups, such as brushes, cutouts, coils, breaker points, condensers, and similar items. Monthly sales are tabulated on each of these items for each area and unit of territory. A study of our past sales in each group, as compared with the total, makes possible a forecast of the ratio of each item to the total parts volume.

Our parts sales standards card shows this ratio and dollar volume of each item. This standard gives us a comparison with actual sales that produces a world of information. The standard is really a quota for each sales item. We usually make the comparison of standard with the total parts actually sold. The comparison is made with the parts quota for a given period and the

result is a quota for each distributor for each item. Such analyses again show us the soft spots in the parts sales set-up that should be hit hard to bring the total volume into line.

These records have proven very valuable, not only to us but also to our distributors, as they have shown them the possibility of the business available in their territories, thus helping to increase both their sales and profits. After these records had been in use for a year they developed or proved a very significant fact and that was that it was not economical for us to operate branches, so during the last year, in accordance with the idea of organizing a business for profits, these records were used as a basis for the decision to close our branches. The result was that although sales have increased, profits have increased to an even greater extent.

One other plan that undoubtedly has been used by a great many of you but nevertheless has proven no less valuable to helping us "administer business at a profit" has been the departmental overhead analysis sheets. By our particular wage payment system we have a common denominator, so that at all times we can set up a ratio between our indirect departments and the direct departments. In this departmental overhead analysis sheet we show the foreman the actual cost of operating his department and the items of expense which he can control. We do not show such items as depreciation, floor space, heat and light, as a great many do, but concentrate on items such as indirect labor, supplies, special tools, spoiled work, expense of breaking in new help, and similar items that the foreman is in a position to control.

At the same time, in going over these sheets with our foremen we have learned a great deal from them and know that most of our foremen have gone back to their job better foremen than they were before and that now they are all thinking in terms of "money and profit" rather than production alone.

We have used other methods and are constantly striving to inaugurate new plans and methods that will increase profits because we believe that neither production, nor selling, nor records alone will produce profits but that there must be a combination of these three factors. The story is told of two men who decided to go fishing and picked out a particular body of water in which it was known that fish could be caught and, after driving to this place, they engaged a guide who was known for his ability to go where the fish were.

They started out and arrived at the place but the guide discovered that the rope which he had brought along for the anchor was not long enough, so they returned to the place from which they had started and secured a second piece, which they tied to the first rope. Again they returned to the spot and again they discovered that the combined ropes were still not long enough.

The men were in favor of starting to fish, even though the boat was drifting about, but the guide insisted on returning for another length to attach to the other rope, and this was done. When they returned the second time to the place, the anchor was cast overboard and it was found that the three pieces of rope fastened together were long enough and the anchor held them, and they had a very successful catch.

I believe that there is a lesson in this story for all of us because we can substitute "profits" for the fish and the three departments of business for the rope required to stay where the profits are. The short rope we shall call "manufacturing". Although the rope was good, it would not hold. The first additional length of rope can be called "selling". Still, even with "manufacturing" and "selling" joined together, the rope was not long enough. The other piece, which was attached, can be called "records", and with a combination of manufacturing, selling, and records we can anchor the business where the profits are and remain there instead of allowing the business to drift about.

We have heard a great deal in this convention regarding the necessity of records in all departments of our business but lest some of you should feel that records are more important than anything else in business, it is my opinion that records are only essential in so far as they save more than the cost of maintaining the records. It has been my experience that a great many records are started for a particular purpose and then continued, even though the purpose for which they were started no longer exists. In every organization it should be one person's job to make a close study of all records at least once a year, or oftener, if necessary, because even though it is nice to have information available at all times, unless this information is used it is a waste of money to continue to spend the money necessary to maintain it.

In this connection I am reminded of the story told of the late Russell Sage. He was once riding with a railroad president in his

private car. The railroad president showed Mr. Sage a device which indicated the speed at which the train was traveling.

"Does it earn anything?" asked Sage.

"Why, no, it doesn't earn anything."

"Does it save anything?"

"Why, no, it doesn't save anything; it is intended just to tell how fast the train is traveling."

"Well, if it doesn't earn anything and doesn't save anything," remarked Mr. Sage, "I wouldn't have it on my car."

Russell Sage's fortune was built on the principle of eliminating the non-essentials from everything.

To "administer a business for profit" we must do likewise—eliminate the non-essentials from every department of our business and keep always in mind the fact that "the primary object of business is to make a profit".

CHAIRMAN JORDAN: We are going to have things made even a little plainer. We will now hear from Tom Frank of the Cincinnati Planer Company.

Thomas B. Frank

Treasurer, The Cincinnati Planer Company, Cincinnati, Ohio

My remarks will cover two applications of a modern accounting system, that is, one that has been developed around proper records such as you have heard about in the preceding sessions. The two applications tie in with each other so well that I will not try to separate them. I am going to divide this into two sections, first, a little background, to tell you what was needed, second, to describe the plan, to tell you how it was put into effect and show you some of the results that have been obtained by some of the individual companies that are using this particular plan.

The cost results being obtained by the Machine Tool Industry over a period of years were fast becoming merely a series of expensive cost sheets, costing more money to compile than they could possibly be worth to any one who used them, if any one ever used them. The extremely intensive competition in the industry made imperative, first, that the industry know what its products were costing, second, that such costs be determined in as simple and yet as scientific a manner as possible.

A few of the level-headed executives of the industry got together and formed a cost committee that started the work of investigation among the members of the industry. Later that industry added an expert cost consultant to its manager's staff, and they have devised a system involving these proper record that is being installed in the various plants of the members of this organization.

The results have been, directly, a uniform cost plan, adaptable to almost every shop in the industry, and a surprising reception by the managers of the plants to the new plan, which gives them everything that they could possibly need in the way of cost and statistical information and some things that they never dreamed of ever knowing.

The first step, of course, was one of organization. First came the outline of the situation at hand, what evils there were to be remedied, and what useless motions were to be eliminated. Here is what took place in one shop, and no doubt the same will apply to some hundred other shops in the industry.

The entire organization of the business was broken down into its various elements, foundry, machining, engineering, and selling and administrative functions. Those elements were analyzed and then reassembled to get a clear picture of what the business was organized for. The final results showed only two functions, manufacturing and marketing. The organization of the work and the accounting records were then planned to take care of these two functions.

The shop handles the manufacturing and production. The office handles the record work incident to the manufacturing and production and that incident to the marketing. In other words, all work, both shop and office, falls into one or the other of these two classes.

The shop is divided into production centers, some being groups of like machines and equipment, some consisting of a single production machine. Shop burden is allocated to these production centers on three bases, first on area for buildings and building equipment, second, machine hours for equipment, and third, man hours for general expense items.

The entire work is so organized that burden rates are determined on a normal basis of plant operation. This eliminates the excess capacity element and enables the management to base prices on current normal cost figures, which has eliminated the feature

of excess capacity, which is not an element in the cost of an efficient competitor. Cost of excess capacity over normal should be shown as a separate item on the profit and loss statement. It is one of the things that has aided management to administer business for profit.

In our plant we were computing our burden on the basis of an average actual expenditure for shop expense, depreciation, and so forth, for a five year period. The rates which were worked out were very close, on that basis, as the actual expense applied against the absorbed rates was less than a fraction of a cent different on the hourly rate, for the past five years. Still we lost job after job to other shops. We do a lot of special work in addition to the manufacture of machine tools. We build special machinery of all types. On this special work we were losing a lot of business because we could not meet the prices of our competitors. Our price, based on the burden rates that we were using, was excessive.

By using the normal burden basis we have segregated every element of expense that has nothing to do with current production and thereby have been able to arrive at rates that are comparable with those used by our competitors, who do not have any excess capacity element to worry about. We are one of those plants that expanded during the war. Since we have done this, we are back in the race for this special machinery business and have shown a nice profit on it, as we should, whereas before all we could do was to break even and keep some shop departments busy. Administering for profit? Yes.

By organizing our plant properly and analyzing the engineering department costs, we have been able to get a true conception of engineering costs on our products. We now operate that department of our shop as a separate business. Almost all work done in such a department is done specifically for some other department, production, selling, and so forth. The engineering department is treated as a separate production center and has its own burden rate. We find this newly established rate to be about fifty per cent of the rate we formerly charged for work done in that department. When you consider the large number of hours spent on engineering work on many of the large special machines that we build, you will see readily that this is quite an item of cost.

The new figures obtained by careful analysis opened our eyes. Total machine costs have been reduced by the effect of this element alone, in spite of the fact that we have increased some of the ma-

chine rates in the shop. By keeping the engineering department as a separate and distinct burden center we have a definite control at all times of all work being done in that department. We know instantly, from weekly or monthly statements, whether the department is earning its burden or not and can locate the causes immediately when any marked deviation shows up.

Before going further, let me say this plan of ours includes the use of depreciation based on replacement values. By replacement value I mean the current price level of the buildings and equipment in today's market, not what you will have to spend for it fifteen or twenty years from now. Interest on the current value of the investment is also included as an element of cost based on these replacement values and not on the original cost. The nice thing is that the plants of the association are accepting this plan. A large percentage of the plants visited by the cost consultant of the association have accepted it. They have realized it is something of real benefit to them to know cost computations based on that kind of a record. They have made money by it and they think it is a fine thing and wouldn't go back to their old methods under any consideration.

One concern in the industry before installing the uniform plan, featuring the newer thought on costs, had gone along for years, making money, after a fashion, on several lines of machines, and losing money on others. They planned to discontinue one of the losing lines. But a check up of cost figures computed in the new manner, showed them that the line was a money maker, for their old methods of cost computation had merely loaded that product with a heavy burden, that the actual scientific facts did not justify.

Shortly before completing the installation of the new cost system, that same plant installed a new piece of equipment of another type than their own manufacture. Soon after the installation was complete they made some cost comparisons and much to their chagrin they discovered that they could do the same work on a machine of their own manufacture, at a much lower cost. Their old cost methods had proved inadequate and hence valueless. They had allowed a manufacturer of an entirely different machine to sell them an item of equipment in competition with a machine of their own manufacture. And it was a much higher priced machine than their own. If that had actually been done in their own shop, right under their very eyes, how much of the same sort of thing had

been done in their customers' shops? Their sales department now has better sales arguments than ever before. Up-to-date cost methods gave them the information they needed to correct a very bad policy that affected their whole organization. Administering for profits? Sure.

There is one other thing I want to bring out before closing in regard to this element of depreciation. The element of taxes also enters into the picture in this particular example. A certain concern some years ago built its plant on the outskirts of a large industrial city. Taxes were low, land values were low, and everything was lovely. Transfer the same scene forward twenty years to the present day. The plant is on the same parcel of land but the city's development has made that land very valuable and justly so. A large and costly boulevard has recently been constructed running along the front of the factory. Taxes have been boosted to conform to the new order of things in the locality. The taxing authorities have no illusions that original cost of acquisition be considered when they wish to arrive at an economic valuation for that property.

So the owners are forced to consider present day values in their present location as compared with present day values in other locations that are economically correct for the location of a machine tool plant. Result—cost figures, properly analyzed and properly based, showed them without a doubt that they could not hope to compete in their industry with elements of cost such as they were now forced to include on cost sheets. To reduce the excessive elements of cost they are moving their entire plant to a smaller city some forty miles away, where men are men and costs are costs comparable with the costs of other machine tool builders.

Without complete, up-to-the-minute cost information, properly organized and set up they would complain no doubt that selling prices were too low and would eventually lose out in their march toward the ultimate goal of all business—profit.

I hope that the points I have discussed have served their purpose—to indicate to you some few of the many ways in which proper cost information has been used as a guide to management in the forming of policies which will enable business to be administered for profit.

CHAIRMAN JORDAN: Next we shall have the pleasure of hearing from M. M. Monroe of the Inland Manufacturing Company.

M. M. MONROE

Resident Comptroller, Inland Manufacturing Company, Dayton, Ohio

This job of proving that the things you have heard at previous sessions is not a lot of "Hooey" but that the various methods described do have a practical application and are essential to the successful administration of business for profit, has been well done. I assure you I will try not to overdo it. I had intended in my introduction to speak at considerable length on the records of the Stone Age, the economic effect of the introduction of double-entry bookkeeping, the events leading up to the industrial revolution and kindred subjects. But on account of lack of time I will merely submit a few specific facts in an attempt to prove a single point—that cost information should not be limited to major executives but that it should be handed right down the line to the foreman in the shop and that the more information you give him about his department the better job you will get out of him.

Up until about two and one-half years ago we had furnished our general manager with a monthly report of manufacturing expense. This report had to give precedence to the balance sheet and profit and loss statement and to other reports, and for this reason was usually not completed before the 20th of the following month. It did not go into any great detail and the use of any of the information usually required further analysis. Consequently it was looked upon as ancient history and very little use was made of it.

Our foremen were interested chiefly in getting out production. Costs to them meant the costs of direct labor and spoiled work. Their conception of overhead was that it was something that kept the company from making money and that the office force was responsible for all of it. We decided it might be a good thing to pull aside the curtain and let them see that a very considerable part of this overhead was something for which *they* were responsible. A weekly departmental expense report designed to furnish a comparison of standard and actual controllable expense was prepared and submitted to them. They were told that the purpose of the report was not to show them up but to give them information that should be useful to them. They were also advised that, if the reports contained any erroneous or unfair charges, we would be glad to have them come into the office and talk it over.

The following day they were all in there. One was furious be-

cause he had been charged with the salaries of the inspectors, who, he said, loafed most of the time in his department. Another declared that, considering the work that had been done, the charges from the maintenance department were simply outrageous. A third was positive he had not signed requisitions for half the supplies that were charged to him. The machine department foreman declared he had checked the price of a certain sewed buff section with the purchasing department before specifying it and that they were 65 cents each and what did we mean by charging them to him at 97 cents.

We had furnished these men with the facts concerning the indirect expense in their departments and it had brought them right up on their toes. The way they went to doing something about it was astonishing. The number of inspectors and repair men working in their departments had never meant anything to them. They didn't like the idea of being charged with them but were told that the way to get them off the report was to get them out of the department. They made life pretty miserable for the chief inspector and the plant engineer for a while, but by getting together they were able to eliminate the unnecessary and the inefficient. One man combined the jobs of trucker and sweeper. All made studies of the usage of their supplies and by budgeting them and by substituting cheaper materials were able to reduce practically all items from 10 to 50%.

The machine shop forman learned that the price of the sewed buff sections was $0.65 per pound instead of $0.65 each and that the average weight was 1½ pounds. He began to experiment with other types, to study his usage, to set standards. The result was that 12 men, instead of using 6 wheels per day at a cost of $9.70 each, used 2.4 wheels per day at a cost of $6.80 each. The saving on this one item, when combined with the attendant reduction in the use of polishing compounds, amounted to $54.00 per day. I have gone into detail in this particular case because this man was not a "dub". He was and is one of the best foremen we have. He had attempted to inform himself with regard to this item of cost. He had been misinformed. He would not have learned his error in any other way. When he did get the real facts he got busy and cut his cost 75%.

What is the answer? There were too many inspectors. The maintenance crew was soldiering. The foremen were wasteful of their supplies. I will admit all that, but the point is the foremen didn't

realize it. They had never thought about it. Give them the facts and you make them think. Get them thinking hard enough and you get action. Give your foremen the details. A lot of these details are trifles but, as Michael Angelo said, "Attention to trifles makes perfection and perfection is no trifle".

CHAIRMAN JORDAN: Mr. Monroe spoke about the trucker and sweeper being combined. I never tell a story but that did make me think of this—an Irishman died and the new general superintendent of the railroad, who was a very likable fellow, went to the funeral. After the funeral two or three of the men were discussing the new general superintendent and how fine it was that he went to Pat's funeral.

One of the men said, "Yes, but by golly! he couldn't drop his habits. Did you notice when the six pallbearers started to pick Pat up he said, 'Hold on there, boys—four is enough for that job' ".

We have one more speaker. I think you all know "Val" Collins of the Rome Wire Company.

V. W. Collins

Treasurer, Rome Wire Company Division, General Cable Corporation, Rome, New York

We have gathered here this afternoon as Mr. Jordan expresses it, in a sort of testimonial service. I brought a paper, like the rest of the gentlemen who have testified, after taking a great deal of time preparing it, and I don't think I shall read it, either, but I am going to look at it as they did. As for testimony, you have listened to my able predecessors. But as the old darkey said, "You ain't heard nuthin' yet". You have heard a number of fine speakers and have heard a number of fine papers and when it comes right down to the finals, I don't feel that there is any necessity of summing up such a session as we have had here, especially, the heated part of it.

A number of the things we heard may sound elementary to some, nevertheless, there is a great deal of meat to be gotten out of them. I was very much surprised in yesterday afternoon's session to see such a struggle going on in trying to tell how to set standards. Why, men, it is one of the simplest things in the world. As a matter of fact, it came with the beginning of the world. God Almighty

established standards when he made Adam and Eve. Of course, those standards have been bettered—admittedly so—which proves you can establish standards and also that standards can be bettered.

It will be a great surprise to me if we don't have several hundred papers written to get Mr. Jordan's generous offer of five hundred dollars. As a matter of fact, I am going to put four of my boys on that to give them a little mental exercise. I repeat, standards are one of the simplest things in the world to set. But sometimes hard to meet, especially the present day standard of living. Standards are very simple. All that is required to set standards is common sense. I am sorry I am not gifted with oratory so I could talk like our good friend Camman, for when you listen to him for a couple of years on the subject, you are full of standards, so full in fact that they seem but elementary.

So take these sessions from the beginning and review what has happened: First is the organization. We can't all organize a new business and start with a very beautiful chart and coördinate all the little things each one should do and where they fit into the picture. Most of us are in organizations that date back from the year one. But there is a job we can do in any organization, as has been demonstrated, from actual experience. No matter how hard-boiled your general manager, your president, or any other executive in the organization is you can do things yourself, perform and accomplish results and so present them, and make them recognize you to the extent that they will be forced to recognize these accomplishments and you men, as the force behind the advancement. I am speaking from experience. Seven years ago I prepared a sales quota. Forty per cent of our production is special. I was told it was easy enough to set standards and quotas on cash registers and washing machines, but it couldn't be done in our line of business. Did I go back with my tail between my legs? I did not. I set quotas of my own accord and every year I revised them and kept hammering at it. Finally, quotas were adopted in our organization two years ago and today the man who wants to see the report every month and wants the information promptly is the man who said it couldn't be done.

Incidentally, to bear out my assertion, that setting standards and quotas is simple, and that results can be accomplished, in the last four months we actually came to 99.7 per cent of a quota of between five and six million dollars worth of business for that period of

time. You wanted testimony, didn't you? That is what I am trying to give you.

Incentives are something we have been working on for years. Seven years ago or thereabouts—nearer eight years—we were confronted with this problem. We wanted to get increased production, lower cost, reduced scrap, and so forth. We inaugurated at that time a foremen's bonus plan, taking into consideration all of our foremen and assistant foremen, department superintendents and so on down the line, and in addition to the production departments we included the shipping, receiving, and maintenance departments.

We had to set standards for this purpose. True, we had old records which had been kept for years and years to use, but we didn't set standards on those old records. They were very helpful, it is true, but we set standards that could be met—but at the same time with honest effort. I can stand here today and tell you that they have been met and it is possible for our foremen to make forty per cent of their salary as a bonus and that they are now averaging between thirty and forty per cent. Year after year, there hasn't been a time in the past seven years that we haven't increased production in every department and correspondingly increased our efficiency throughout our plants, and our records will show that last year, in spite of our increased production and activities of expansion, we were able to save in the scrap item alone twice what we had paid for the entire bonus; and our foremen are acquainted with their costs, their production, their idle time, their scrap, their controllable expenses through the establishment of these budgets.

Another plan based on the use of these records provides an incentive for our general mill workers called "Production Premium", and is determined monthly from production records and paid when production exceeds standards set up for the plant as a whole. This makes for greater coördination and interest in production between departments. Piece work and bonus systems in both our direct operations and service departments have been the means of effecting greater savings. For example, in one of our shipping rooms, we have reduced our force from nine to four men, who now handle 25% more shipments than formerly. These four men now receive a better wage and are contented as is evidenced by the fact that we have had no labor turnover in the last three years and, in addition to that, our stock room is in much better condition and we have an appreciable reduction in the number of shipping errors.

The application of this principle to our shipping and receiving departments represents an approximate saving of $20,000.00 per year alone, and this, of course, is only made possible by the use of proper records.

We have an organization that is built up from the ranks. By that, I mean the subordinate organization under the executives, and we have done that by bringing young men through the mill up into offices and giving them an opportunity. In that way we have built up an organization that I will defy anyone to beat, and I want to pay a special tribute to that organization today.

The very excellent session of yesterday morning on the question of setting up the records to fit the sales and general organization, conducted by Mr. Camman, sets forth the importance of such records clearly and definitely, which we can most heartily endorse from our experience.

We had considerable difficulty in getting records together and making an analysis of sales, at the beginning, but we plugged right through and eventually reached a point where today we can analyze our sales by total sales, by states, by territory, by salesmen, by plant, by class of customer, and by customer individually. In fact, we can determine the quantity and values of sales, the cost of sales, gross or manufacturing profit, sub-divided into main product, sub-product, and even the size class, and we can also show profit by salesman. With these analyses of sales, combinations can be made that will show up the weak spots and give us an excellent idea of the profitable and unprofitable products, enabling us to present facts to our sales department, encouraging them to obtain better prices if possible. This also serves for management's information to analyze manufacturing conditions, having in mind reduction of costs. By comparing our market analyses and sales budgets with the sales breakdown, I have just mentioned, we are able to determine the territory efficiency and immediately bring it to our district sales manager's attention.

We have also been able to eliminate the flitting salesmen who have sent in many reports of calls but very little business. We have placed business in the hands of agents in sparsely settled territories on a small commission basis rather than have a salesman travel the territory. We have proven that concentration of territory, as well as effort, has made for increased sales and profit. Likewise, we have been able to demonstrate that a salesman with large volume sales

and low margin profit is sometimes not an asset to the company. By taking the customer sales and breaking them down into classes we made the alarming discovery that eighty-three per cent of our business was coming from eight per cent of our customers. Think of that, gentlemen—then compare it with your results. By carrying this analysis into territories, we found much wasted sales effort on many small, poor credit customers.

From all such available information, we have been able to set up intelligent and reliable sales budgets as is borne out by actual results. Our actual sales for the first quarter this year ran 99.7 per cent of a budget of between five and six million dollars for the period. With such a sales budget our factory then has a better idea of what to plan for in the way of capacity, our inventories are under positive control and we have been able to cut our inventories twenty per cent despite an appreciable increase in sales. Because picture writing was the first means of expression in primitive days, we have charted practically all of our information for several years and thus graphically present our statements. Our executives have both actual figures and graphs for several years comparison. By this careful preparation and survey of proper controllable records, we have eliminated many unnecessary reports and our executives are at all times familiar with sales, production, and cost information, so that they can determine advisable policies toward further administration of our business for profit. And here again, let me emphasize, in closing, the importance of a real organization, for without this type of organization all the records in the world are of no avail.

In summation, first to you who have all of the requirements as set forth in this session and are enjoying the prosperity of a successful business, more power to you and may you have continued success, which will and can come only through continuation of effort and progress with new developments, and keeping abreast of this rapidly developing industrial age. And to you who have not enjoyed the pleasure of such an experience, my advice is to go after it and go hard, put your heart and soul into it and exert every effort to profit by the opportunity and advantages you have through this Association of ours and you then will be one of the happy ones, among those who are administering business for profit.

CHAIRMAN JORDAN: We are getting along to the last of

the revival service. I have very little to say in concluding the program of this conference. I want to remind you that we have eliminated to a very large extent all detail in respect to procedures, in respect to technical methods. The whole object of this convention has been to draw a picture of some mechanisms which do not take the place of management by any means but without which management cannot get along. We must know throughout the company what we are all doing. That is organization. We must know what we are doing from a financial standpoint in the matter of results, and that is records.

In order to make money out of those records and reach the ultimate profit goal we must set a goal to reach; we must set standards. When those standards have been set properly we can then put in and set incentives whereby we may have an automatic increase in salary for everybody and be somewhat like the farmer who said he was glad he was a farmer because he could raise his own celery (salary). When that is done and these profit sharing or better—saving sharing methods are set up they have an absolutely instantaneous effect on the profits, on the personnel, on the spirit in the organization, and in every conceivable way.

I was very glad to have the point brought up in respect to the men themselves knowing their job, knowing what they were doing, and the great increase in coöperative spirit which it brings out. It does that because when incentive methods are properly set up you don't pay it out all at one time but some of it should be set aside into a fund which should be divided between all of them upon a certain basis in a given time, usually a year, although the regular incentives are paid out every month.

Throughout the whole thing, just remember that the great secret of management is in paying strict attention to that little word, psychology. Psychology means the control of the human mind and its actions and if we can properly lead and influence every one in the organization into true spirit of coöperation, a spirit of contentedness, a spirit whereby they know, just as was said here, that they can increase their income in added effort, that nobody asks them to work any harder unless they want to.

In setting incentives, salaries are paid for normal effort but, like our Congressional Medal or any other medal of distinction, the incentive comes in an automatic remuneration for extra effort and it is surprising how much that extra effort finally becomes confined

simply to using one's head more and physical effort less. The trouble with all of us is that we don't look far enough ahead.

I will bet you fifty cents to a hole in a doughnut that many of you, in your personal budget, wish when the bills come in that you had run on a little more systematic and planning basis so that you could pay your bills and have a little left. So it is in business. What we want to do is get the psychology working in order to get a greater brain effort from every one.

There is one point I noted that has not been brought out in the matter of incentives. There were a number of questions in respect to how much had been earned on salaries and the answers have been anywhere from five to forty per cent. Let me say one thing; let me appeal to you that if you encounter any hard-boiled managers or executives who say that you can go ahead and set incentive methods but you must put a restriction on the amount of bonus anybody can receive, don't do it. If you set your standards properly you are going to pay incentives which are from extra profits made by the company.

Somebody from the Westinghouse Company said that incentives were set up even before the bonus was started. They reduced their cost lower than ever before. Good Heavens! If any organization was making money already on what had been set up as standard as a profit, what kind of management could possibly think of putting a restriction, for instance, saying that nobody could earn more than a fifty per cent bonus? That same psychology will reverse itself if they put their shoulders to the wheel and revamp and revolutionize their efforts to a point where every one can earn a bonus of two hundred per cent, and then be cut off at 50 per cent.

I know of one case where standards were set that seemed to be absolutely unattainable on account of the nature of the business and yet the first year they made two hundred per cent bonus. Last year they made four times their salary and yet the company, which ordinarily ran gross profits of three million dollars a year, made an extra profit, after paying that bonus, of over one million dollars. You can't tell me setting a limit on that would be the right thing.

Look around you at successful companies and men that have allowed the individuals within their organizations to earn as much as they could like Charlie Schwab and General Motors and many others. We marvel at them and yet, why should we? Their success

is due to the fact the management had the brain to see what such a plan would do.

We have tried to impress upon every member of the National Association of Cost Accountants that no one in the world has a more wonderful opportunity to broaden his effort, to cease thinking of the particular technical methods as such and instead think of what they are all for.

You heard one of the representatives of the cost department at the Fisher Body Company say that twenty-five per cent of the cost of operating the cost department was incurred in determining profit and loss and the other seventy-five per cent was industrial engineering. Why not? Every one who is concerned with cost broadens into that. It is a field that belongs to the cost accountant if he is duly and truly preparing himself for his job. Go out and study your plant, your personnel, read, work, broaden yourself, and enter this perfectly wonderful field that is producing profits. Study the organization, the records, the standards, the incentive methods, and study all these from the standpoint of making profits. It is needless to say what the result will be.

Of course, it makes money—you can see that—but we haven't gone far enough in our work as cost accountants, and that has been the whole object of this convention. So, in turning over the session to our President, I want to say as Roxy does, "Good night and God bless you!"

PRESIDENT SWEETSER: There is a little matter here in which we are all interested, I think. It is a little unusual, a little irregular. The Board of Directors had a meeting this noon. I found one matter had not been attended to and so I am going to call a meeting of the Board right now here on the platform. I will ask that the members of the Board come up to the platform at this time.

. . . The members of the Board of Directors came to the platform . . .

PRESIDENT SWEETSER: These are the boys whom you have elected and who are serving you as Directors.

C. M. FINNEY (Manager, Industrial Department, Prince and Whitely, New York): Mr. President: In connection with the re-

marks you have made there are a few remarks I should like to make regarding one of the members of this Association.

This gentleman has worked continuously and earnestly in behalf of the Association. He has held a number of offices but he has always worked, whether in or out of office. The Association has twice honored him by electing him to the presidency. Even then he didn't stop working. He has continued this work right up to this very moment through the organization and direction of the sessions of this convention. I think it is only fitting that proper recognition be given to this sort of effort. Therefore, Mr. President, I wish to offer the following resolution:

"A RESOLUTION OF THE BOARD OF DIRECTORS

OF THE

NATIONAL ASSOCIATION OF COST ACCOUNTANTS

On motion regularly made and seconded, it was unanimously resolved that the Board of Directors of this Association, in the presence of the 1929 convention of the Association assembled at West Baden Springs, Indiana, hereby officially records, with the warmest expressions of gratitude and appreciation, its recognition of the outstanding contribution of effort and interest which Mr. J. P. Jordan has made to and on behalf of this Association,

And Be It Further Resolved that this Board extends to him its sincere wishes that health, happiness and prosperity will be his always."

Mr. President, I move the adoption of this resolution.

... The motion was seconded by T. H. Sanders of Boston ...

PRESIDENT SWEETSER: Gentlemen of the Board of the National Association of Cost Accountants: You have heard the motion, which has been seconded. All those in favor say "Aye".

... The motion was carried unanimously, followed by prolonged applause of the assembly, which rose and under the leadership of Harry Whitney, National Chorister, sang "Dear Old Pal of Mine"...

MR. JORDAN: Gentlemen, I just can't say anything but "thanks".

PRESIDENT SWEETSER: I declare the technical sessions of this convention adjourned.